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THE PRINCIPLES

OF

INTELLECTUAL EDUCATION

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THE PRINCIPLES

OF

INTELLECTUAL EDUCATION

by

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at the University Press

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"Facts are valuable to a wise man, chiefly as they lead to the discovery of the indwelling law, which is the true being of things, the sole solution of their modes of existence, and in the knowledge of which consists our dignity and our power."

S. T. COLERIDGE.

"It is impossible to estimate the ultimate good to be derived, in indirect ways, from any bit of mental cultivation that one manages to give oneself."

H. SIDGWICK.

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CHAPTER I.

THE IMPORTANCE AND LIMITS OF THEORY.

No man is born free. We are the slaves of our descent, of our breeding and nurture, of surrounding circumstances. From the moment of our birth to the hour of our death we walk loaded with fetters, which limit our movements, hamper our development, and modify even our essential characteristics. Our life is one long struggle to attain freedom, and if, as the years increase, we to some extent enlarge our liberty, on the other hand new bonds are forged and we become the slaves, not indeed of others directly, but of our own past selves. Of all slavery this is the worst, the most binding, the most intolerable, yet the most unescapable of all. For nothing can really free us from it—pure liberty is impossible. Greater freedom in one direction is balanced by greater servitude in another: our one aim must be to make the inevitable servitude a servitude to what is best under given conditions, a freedom from the bonds that are removable, a binding only by such shackles as may be the noblest out of those which the whole surrounding world may fix upon us. To dream of greater freedom is delusion—a delusion of dangerous import. Our activity is closely circumscribed. If we wish to reach any freedom at all, first we must recognise our limitations: by so doing we know what it is useless to combat, and hence do not waste our energies, themselves also limited, in unavailing

efforts to attain the unattainable. Ideals of perfect freedom, whether it be a return to the fancied nobility of supposed primeval days, or an advance to a millennium—dreamt of, yet indescribable—in the far distant future, may have some value as giving a standard by which to judge ourselves and may to some extent shape our efforts, but in the main they are apt to lead to loss, producing a disregard of the material conditions under which we have to work, whether we will or no. Even Robinson Crusoe on his desert island had no completeness of freedom: old habits, old wishes circumscribed him: no man can escape from his past self, or from the human nature and varied instincts he draws from unnumbered lines of ancestors. To recognise this fact must be the first duty of an education aiming at the feasible: by the co-operative effort and concentrated action of many generations we may perhaps lessen the weight of our binding fetters—succeed in changing them for others, perhaps nobler: but fetters there are and fetters there must be, as long as an impression tends to revive, as long as habit results from repeated action. And without habit where would education be?

In education then we have not to deal with mind or character as a pure *tabula rasa*: rather we are dealing with a semi-fluid material which has from the first been setting in a formal mould—a setting we can modify only on certain lines. We can neither break the mould and substitute another, nor supply different material to be cast in the same mould: the utmost we can hope is by gradual pressure slightly to modify the mould itself, and to insinuate by slow action some new ingredients in our material, so that, just as in geology we find that the same substance by contact with one rock will be modified in this way, by contact with another will be modified in that, so the developing mind or character may not merely take a shape modified from that which it would have assumed if left alone, but may even undergo a modification of its apparently essential nature. There are limits, however, to

such chemical changes: a limestone will not modify into granite or a granite into coal. Chemical change indeed in education is, if not non-existent, certainly rare and difficult to produce: we may perhaps replace one ingredient by another in the mixture which makes the groundwork of our character: even that substitution however has its limits, and is far indeed removed from true organic change. For the most part we have to remain content with slow modification of the balance of our powers, and here we may have ideal moulds into which we may try to cast all those whom we are training: the result will indeed not always be the same: at times the mould will burst, at times will not be wholly filled: but the ideal set up will be of value, however hopeless our effort to shape everything alike—a result in fact which, even if attainable, would yet by no means be one to be desired. But it is very different with the question of chemical change. We can there set before ourselves no definite ideal: we do not know our powers or the possibilities of change: if any change is effected of a chemical nature, it proceeds by laws beyond our knowledge, and is due to a process we can hardly control[1]. For at bottom we are ignorant of the fundamental constitution of any single human being, even of ourselves: we can mark—perhaps with greater inaccuracy than accuracy—the more salient elements of a

[1] That mechanical change in mental constitution is easier to effect than what has been called chemical, may be shown by such an instance as the treatment of lying. In those cases where lies are due solely to fear—cases not uncommon—it is comparatively easy by removing the cause of fear to check the propensity to lying, and this treatment, if continued for a long period, will check the growth of the habit of lying, so that the tendency will die of inanition. In this way we shall end by producing a truthful habit, and this is a purely mechanical change: but if we try to go further and implant the feeling of honour, so that it develops into a kind of atmosphere surrounding and colouring every act of life, then we have effected a chemical change, inasmuch as every act now enters into new relations and shows a quality it did not before possess. But this second step is far more difficult than the first, and in many cases where the first may be taken with ease, the second is never taken at all.

character we are studying: but to probe them to the bottom, to judge their comparative strength, is beyond our powers of insight, especially during the period which is devoted to education—the period of development and a constantly shifting balance: hence it is impossible to judge with security what will be the effect on an inherent characteristic of some new influence we may bring to bear: we must always allow for our ignorance of essentials, knowing neither with certainty what real powers a child possesses, nor the exact nature of such as we are able to divine. From which considerations two important results follow. One is that we cannot hope to do more than modify the original characteristics—a radical change is beyond our grasp, so that we should set ourselves to foster growth here and check it there without often attempting to implant fresh shoots or graft on any new powers: the other is that in considering education in the abstract we shall be dealing with the form and not with the substance of the mind—with shapes, not with chemical change—laying down in fact broad rules, requiring in individual cases constant modification. If chemical change can be effected at all, it can only be wrought with individuals: we cannot discuss it in the abstract. In beginning education we must be guided by broad principles and broad ideals: experience and knowledge of special cases may perhaps give us hope of going deeper, but such cases are too individual and concrete to make their treatment in the abstract anything but futile.

Hence can be drawn the justification for ideals in education and general rules. It is vain to decry the theorist on the ground that his principles do not produce the effect he desires. We are all of us theorists in our own way—one man with deeper insight, one with less deep: we all of us too are willing to acknowledge that we fail really to attain our ends: but few would admit that without definite aims they would have achieved even the slight results to which they have attained. In many cases theory lays itself open to the depreciation which

is so willingly accorded precisely because it neglects the distinction between a chemical and a mechanical change, or between the slight mechanical changes to which old elements, all originally present, may give rise when recombined, and the greater and more fundamental chemical changes which result from the introduction of ingredients quite new: in the former case theory may help us to effect something: can it do anything in the latter? Even in dealing with mechanical changes rules may not work out exactly as we wish: but experience long gathered will strengthen the rules, showing how much of truth they contain, how far they require modification: that any rule should hold exactly in any given case is, with the complexity of the material we are handling, not a thing to be expected, however greatly to be desired. Hence in laying down a theory of education we have to consider not particular combinations but general types—the way in which minds most readily respond as a general rule to a stimulus applied. Moreover we have to take into consideration the practical aims of education—for what purpose it is needful in life: and from this consideration springs at once an important point, not always sufficiently borne in mind—that the type of education which befits one time will not necessarily suit another—that what is well adapted for one class of society may not be so well adapted for a second. From which it follows that the theory of education can never be absolutely fixed: it must have relation to the circumstances and aims of the time: though general features based on psychology may be common to all theories alike, yet details may differ, and this difference in detail result in a final difference of great moment in the general effect. And here we see at once that the trammels binding the individual are not to be limited to those personal to himself: we are slaves to past systems of education which, through the conservatism natural to man, will retain great power when their usefulness is past, and instead of helping forward the younger generations be a distinct barrier to their progress.

Complex then, most complex, must be any theory of education which aims at completeness, even in dealing with the mass: no single treatise could hope to cover the ground. But if it be fully grasped that the theory of education is only a sub-science, working out its own conclusions, and meant, when these are worked out, to be brought into correlation with the various other social sciences all of which aim at the consideration of the question how best to live, and being so brought into correlation to undergo the needful modifications which the theory by itself cannot supply, because it is dealing with only one branch of life, not with life as a whole—just as, for instance, political economy must to be really of working value have its conclusions modified by the conclusions of other social sciences, or as abstract geometry must, when applied in practice, have its results modified by considerations of the properties of matter—then there will be but little danger of the theorist in education being supposed to stretch his claim beyond its proper sphere—the establishment of certain general principles which must be understood and taken into account, but not applied in practice without modification. These general rules will be of value in dealing with even an isolated child, much more with children congregated into masses—masses often unwieldy—at school: but in every case we have to bear in mind that there may be general considerations arising from facts outside the purview of education proper, which may lead us to neglect the rules we have reached, as it were *in vacuo*: especially will there always be a particular modification of the material to be dealt with in each special child, where indeed, though we shall not readily throw aside all regard to abstract considerations, we may yet find it needful to modify them largely. Bearing then in mind the complexity of the material and also the complexity of that material's surroundings, we shall be in no danger of going astray and imparting to the rules of education an infallibility of application to which it would be absurd for them even to pretend.

CHAPTER II.

THE AIM OF EDUCATION.

WHAT then is the aim of education? Only one answer in general terms is possible—it is to prepare for life. But when we begin to work out in detail all that is involved in this apparently simple formula, we begin to be conscious of the difficulties before us. Even setting aside the question of the formation of character, which does not fall directly within the scope of this treatise, and limiting ourselves strictly to the training of the intellect, it is clear that the same qualities do not suit all walks of life, and that the possibility of developing adequately both the special qualities required for special pursuits and the general qualities common to all, if any such there be, will depend in both cases alike on the natural quickness and adaptability of the mind to be trained and the length of time during which the child can be kept at school. Hence four questions arise: (1) What are the general qualities of mind which education is able to develop, if any? (2) What special qualities fit special walks? (3) What is the natural character and adaptability of the mind under training? (4) How long can that training be continued?

Now two of these questions, the second and the fourth, cannot be handled effectively in a general disquisition upon education. They require special treatment to be of any great value. At the same time they cannot be put aside altogether,

the second question even less than the fourth. It may not be possible to detail in full the peculiar training required to form, say, a good scholar or a good business man, a good investigator in science or a good man of his hands: but we cannot pass by such questions altogether, and to a certain extent it may be needful to give more than an incidental remark to the changes that such considerations introduce into a general scheme. This will appear as we progress. But the length of the training is in itself hardly so important. It may necessitate indeed separate schemes of education for those who leave school at thirteen or fourteen from the schemes devised for those who will proceed to a University: but it is closely bound up with the second question, and will perhaps best be handled incidentally, when we come to the separation of different curricula. The third question, again, though of vast importance, is an exceedingly difficult one to answer in general, if indeed it is possible to do so at all: it may be within our powers to classify types roughly, but the special qualities of individuals must in the main be left to the particular trainers, subject only to such guidance as a few generalities may supply, and the broad rules of education at large.

The chief object then of our enquiry must be to find an adequate answer to the first question propounded—What are the general qualities of mind which education is able to develop, if any?—followed later by the natural sequel—What is the best means of doing so? And the answer to this question must obviously be connected with the answer we gave to the broadest question of all—What is the aim of education at large?—when we said it was to prepare for life. Hence we may start by shaping the question thus: What are the qualities which are most useful, no matter what walk in life we pursue? They may perhaps be summed in two words—flexibility and exactness. The former involves all those powers which enable us to pursue any line with success—activity, quickness, insight, breadth of outlook, originality, comparison, differentiation and

the like,—the latter those qualities which secure not merely that we have some chance of success in a given line, but also that we lose as little effort as possible, always following the safest course to our goal—the correct interpretation of facts laid before us, the drawing of valid conclusions, the separation of the true from the false, the proper adaptation of means to ends. Without the former we fall into a groove, without the latter are led by will-o'-the-wisps. Flexibility is concerned with the growth of mental content, exactness deals with questions of method. Both qualities, though strictly intellectual, have a strong moral element intermixed: this element in part depends upon them, they in part depend upon it: for morality is impossible without intellect, sound intellect without morality. But the moral side is not the consideration here: all we need say is that in training the intellect we must keep the results upon morality in view, and again that we cannot train morals to the full unless we build upon a foundation of intellectual power and insight. Though for convenience we separate the two, intellectual and moral training are closely intertwined. Indeed at bottom it is only the consideration of the effect of the training of the intellect upon morality that can save education, as ordinarily understood, from the reproach of being merely a worship of mammon, a grovelling pursuit of success—an ideal which is degrading alike to the individual and to the nation which sets it in the first place.

The aim then of education being flexibility and exactness, we have to consider by what means these two ends can best be reached. Partly they are concurrent, but by no means altogether: and certainly they can easily be discussed apart. The tendency of the mind is to stiffen quickly in the mould into which it is at first poured: our business is to modify the shape of that mould where needful, and to prevent its content solidifying into an unalterable mass. Not an easy task—in some cases very difficult: custom throws its iron chain around

us: we are wrapped in a contented slumber, heavy as lead and deep almost as death. Here we find the enemy we have to face—the enemy against whom we have to arm our charges, and to arm them too in such a way that the weapons conferred will serve them in good stead throughout the whole of their days. Again not an easy task, but one worth essaying: for the mind thus formed is alone the living mind, alone the one which does not die while still it breathes the vital air.

But if exactness and flexibility may be regarded as summing up those general qualities which we may hope to train successfully from the practical point of view, it has still to be remembered that the practical end of life is not the only one—all our efforts and energies are not summed up in money-getting, in holding our own, or more than our own, against our fellows. A large portion of life is recreation, or devoted to pursuits which have no direct return in personal or social advance. What about these pursuits? Are they to be considered in our educational scheme or not? Can they be trusted to look after themselves? Certainly not altogether: even such a subject as artistic training, which from many points of view may seem most remote from intellectual education properly so called, is based to some extent upon intellectual qualities: and if the scope of this discussion allowed us to consider the training of the emotions and morality, it would soon be seen that preparation for a sensible employment of our leisure, and the training in what may be called the graces of life, is bound to form an essential part of any complete scheme. Indeed, though the remark may be thought a paradox, in some ways the most vital of all our training is precisely the training which prepares, not for the work of life, but for its amusements: the amusements show the man, and it is through his amusements that he mostly goes wrong or scales the greatest heights. To cultivate a hobby should be our guiding-star when we view education as a whole: but when we are concerned with intellectual education proper, that consideration must remain in the back-

ground. Though we may find it advisable eventually to modify any scheme we may devise for intellectual training proper by consideration of the pleasurable aims of life, here that can only be done incidentally: practical aims must hold the first place—be treated as forming an independent science, the conclusions of which may be subject to modification when the preparation for life is regarded as one whole.

We are thus brought back to the former point once more—that we are trying to establish an abstract science out of very complex material, which it is exceedingly difficult to resolve into its elements, even in pure thought. Any single conclusion thus drawn in the abstract is liable to require unending modifications when we bring into view conclusions from other data. Sometimes it may be well to indicate even here what those modifications may be: but if not specified, they are not to be forgotten when an attempt is made to apply in practice the conclusions at which we may now arrive. Intellectual education is only a sub-science: education as a whole is of far wider sweep.

CHAPTER III.

EXACTNESS.

We have now to consider more at length what is meant by the two leading aims which we assigned as the proper general ends of intellectual education—flexibility and exactness, and to see what practical guidance they afford in the choice of subjects or method of teaching. Let us take exactness first, for that is the simpler of the two, itself necessary to render really valuable such flexibility as we may be able to attain.

In educational writings we have many homilies preached upon the virtue of a regard for the great goddess, Truth, and are told that exactness in intellectual work is but one side of the worship we owe to her divinity. It is true that exactness in intellectual pursuits runs up into morality, and that fullness of morality is impossible of attainment without so deep a regard for truth as presupposes, not only that we never make a statement we know to be false, but also—a rarer and harder virtue—that we conscientiously do our best to arrive at all the facts and to view them in a clear atmosphere undistorted by the mists of prejudice. And yet the homilies often preached seem to some extent to ring false, chiefly perhaps because intellectual truth and moral truth, though akin, are not one: and though both deserve our admiration and worship, the ordinary sane man is not prepared to pay to intellectual virtue the depth of reverence he extends—and willingly—to the snow-

clad peaks of pure morality. Here then it is necessary to put forth a claim to the importance of intellectual exactness on simple practical grounds—the ease and smoothness of life itself. And how strong an appeal on such grounds may be made! Who does not know the grave inconvenience caused by a message wrongly delivered—the misinterpretation of a clear statement—ideas read into language which were never there? Or worse still the harm done in social tittle-tattle by inaccurate repetition of words used, or assertion of words not used at all—the colouring of a statement by displacement of language or the omission of qualifying clauses—the description of an incident viewed in a false light or with circumstances read in as if they were facts, though they never really occurred at all? Where would be our law-courts, if we all attained exactness? where our legislators? How many misunderstandings, how many quarrels would be avoided, were we thoroughly exact both in hearing and in speech? We have indeed advanced far from the brutes, but remain, it is to be feared, yet farther from the angels. Even in strict business a vast amount of loss is caused by a similar want of exactitude, though from the point of view of education, this disadvantage matters less, for business exigencies will give a severe training, even if it have been entirely missed at school. But the play of social life does not provide so many openings for supplementing the defects of education, and the corrections, when administered, are apt to be painful. Perhaps they are therefore the more effective, but how much better if we had learnt the lesson at school without having to undergo these painful penalties!

Now if the work be properly done, all intellectual education involves training in exactness. Literature, history, science, mathematics, writing, drawing—all have this in common, that for good work great accuracy is required, though the subjects be as diverse as a translation from Thukydides, the qualitative analysis of a chemical compound, the accurate representation

of a view, or the memorising of facts and dates in history. And hence we may dismiss as overstated the claim which some scientific men put forward, that natural science should take the first place on the ground that it deals in a special sense with exactness, which exactness can be attained by no other system. How much of truth may underlie this claim will be manifest later: but for the claim to be substantiated in full, it would have to be shown—what cannot be proved—that training of the mind to accuracy in one direction is a training of the mind to accuracy in all. We may grant that exactness in the study of one subject is *pro tanto* a gain, and that the influence thus brought to bear will throw a colour as it were over all mental operations: but ordinary observation will soon show that a mind highly trained in one special subject is by no means always capable of estimating the conditions under which truth is won in disparate spheres—in other words, that accuracy in one subject is by no means a guarantee of accuracy in another. At school this is only too obvious, and arises no doubt in part from lack of interest: but the same holds good in ordinary life, and it would perhaps be well for the world at large if it were not quite so ready to bow in assent to the dictum of a man who is distinguished in one sphere when he lays down the law, or even expresses his opinion, on subjects with which he is not competent to deal. And the reason why accuracy in one department of knowledge is not necessarily a guarantee of equal accuracy in another, is that the term accuracy covers different operations. It may mean observation pure and simple—so far as observation can ever be really pure, which is perhaps an open question:—it may mean interpretation: it may mean the power of inference, involving the power of correct selection: or when it comes to practical pursuits, it may mean the proper fitting of means to ends. Here are a large number of different mental operations, and even though natural science may in many of its branches involve an appeal to all these processes, yet no one can say that because a

scientific man may be able to select, compare, and infer from his given material with accuracy, and then adapt his inferences to new ends, he will therefore without a special training be able to do the same with quite other material—the working, it may be, of human minds and character, whether seen in history or in some great poet, or in the actions of an ordinary human being. We must not so limit the powers of even the weakest as to suppose that training in one single direction will fit us to discharge adequately the various offices of life. After all such a sphere as that of natural science is far more circumscribed than the operations of the whole mind as roused in our daily intercourse: and education must aim at covering the broader ground—at giving us the training which will best enable us to face with the utmost possible measure of success the problems and difficulties, sufficiently grave, which every-day life will constantly present.

It is clear then that in aiming at exactness we have at least two kinds of data to consider—one, the world of material things, subject to fixed and unbending laws, the other the world of mind, itself also equally subject to law and the operation of cause and effect, yet with the governing laws so obscure and hidden, and acting upon material so complex, that we may well say that results are for us at present unpredictable, or at least only predictable with vast allowance for error. It is clear that a mind trained in the rigid infallibility which rules in the domain of the physical sciences, and even one trained in the less rigid deductions which obtain in the sciences of natural history, may be by no means equally well adapted, without a similar special training, to deal with the apparent uncertainties of personality. And yet a mind properly trained should be capable of facing both kinds of problems: if however it is impossible to train adequately for both, then it is the rigid science which must give way: for the simplicity and fixity of natural science cannot be found in ordinary life, but present themselves only to the worker in special spheres: whereas the

necessity for knowing the action of humanity, its motives and purposes and character, is a necessity which can never leave us. We have constantly to be interpreting the words and actions of others in the light of a trained intellect and by the outward expression given to hidden thoughts: we have not constantly to be interpreting rigid phenomena of nature: those which directly come home to most of us are few in number and of such regular occurrence that, even if we did not learn their operations in very early years, the mere frequency of them and their regularity would guard us from much harm. Scientific training has its right place and is valuable for every one: but man does not live by science alone, nor indeed chiefly, but more by the emanation of human thought from complex human minds.

These observations might not have been needed were not the present a time of transition—a transition which shows in a changing education, where science, long neglected, is now coming to her own, and, in revenge it may be for her long neglect, desires too often to drive even from their proper sphere those studies which are known as the humanities. The defence of the humanities rests, we have seen, upon deeper grounds than prejudice or mediaeval tradition, nor is it bound up with the defence of Greek and Latin as indispensable adjuncts of a complete education. It rests upon the fact that they are the science of man himself in all his varied activities: that man is more to man than nature can ever be, and that therefore it must lead to nothing but disaster to put science in such a paramount position that she may banish the humanities altogether. That indeed would be strictly impossible: human nature you cannot drive away: for if all regard were dropped to the study of the mind, to the history, that is, of human thought and power, yet life itself is ever giving us instruction—perhaps the most valuable of all that we receive—in the way one mind reacts upon another: so that, leave science, if we should, to play the tyrant in our schools, yet nature will

work to defend the humanities, and will save us to some extent, if not in the surest way, from the fatal results of what would be, if adopted, the most self-condemnatory of all policies.

It being then premised that natural science cannot claim to teach exactness in every branch of knowledge, still less in every sphere of life—and the same may be said of the humanities themselves,—the question arises in what points different studies do effect a training in exactness, and what aspect of exactness each one emphasizes. For as already pointed out, under the one term exactness many mental processes may be implied: one subject may train one, another another. Observation, comparing, distinguishing, inference—all of them enter into exactness as a whole, yet all of them may not be equally reached by means of the same subject matter. With which then shall we begin? Clearly from the logical point of view observation underlies the other processes, and it is natural to start with this: indeed it is observation which gives us our material—that without which all reasoning would be impossible, all accuracy an empty name. We may perhaps take our subject matter from another, receiving it thus at second hand: yet even so it is ultimately derived from observation: and we may at any time feel obliged to revise for ourselves the data from which we have started—rarely perhaps if those data are derived by short processes from original observation, frequently if they have been the result of a long intermediate chain of argument, unless their accuracy is so often confirmed by experience that we rest assured of the impossibility of error in arguing from them as ultimate truths. This position indeed assumes that all our knowledge of every kind is derived from impressions made on our senses, and that none of it is given *a priori*, but no harm will be done to our present investigation by such an assumption now: for we have not here to enter into metaphysical disquisitions as to the real objectivity of matter, or to raise the theory of knowledge: all we are concerned with is sense-impressions and their con-

formity with each other under laws of our being whose true nature and validity lie outside our province: if we have any *a priori* knowledge, or laws of thought exist not derived from experience, we cannot get outside our human limitations, and our only concern in education is with the self-consistency of our thoughts and the conformity of our impressions to what appear to us to be external realities: we cannot alter what comes as part of our being: that is one of the data of education, not a subject with which we have to deal.

Observation then we may assume is the foundation of our knowledge—sense-impression in some form or other. And that we should treat of observation first is indicated by another fact—that beyond all question it is the first faculty to develop in the mental history of the child, the faculty which, if left alone, is strongest in the earliest years. It is the offspring of wonder, of curiosity, or perhaps we may reverse the relationship and say it is itself their parent:

> "Man gazed into the sky and saw the sun:
> His mind awoke and knowledge was begun."

If these lines are not scientifically exact, they represent at least the cardinal feature of the importance of sense-impressions for the stirring of the mind. And empirical observation and scientific study of the infant mind alike agree in this—that the earliest training comes from those impressions which are reached by the three great avenues of sense—sight, hearing and touch, with muscular perception as a modification of the last. Hence our earliest efforts must aim at training these senses—the eye to differentiate colour and form, the touch to respond to various tangible properties, the ear to distinguish sounds in their separate aspects. In civilised life as we know it, the training of these senses may be of unequal importance: the ear, for instance, to us is not as important as either the eye or touch: but it has not always been so: to a savage in savage realms the ear or the nose may claim

precedence over both touch and sight. And even to this day the trace of that fact remains in the keenness with which an infant will devote his whole attention to a strange or unusual sound. But until it is necessary to consider how far music should enter into a complete scheme of education, we can leave the ear on one side: the eye and hand claim the first attention.

CHAPTER IV.

THE TRAINING OF THE SENSES, EYE, EAR AND HAND.

The training of hand and eye goes on largely together. It has been proved that our sense of space is given partly by sight, partly by muscular impression, which need not be confined to the outstretching of the hand: to a large extent the training in space-impression is involuntary, and great accuracy will be reached without special instruction. But colour depends on the eye alone, and apparently it is colour which has most interest for the infant, at all events after the perception of brightness. Yet colour in itself plays no large part in the development of the intellect, though it may be of importance for the proper prosecution of some branches of science—chemistry, for instance, or botany: nor has it any bearing, so far as one can tell, on the other aspect of education, the moral. Hence if it fails of adequate training, no serious harm is likely to result, the less so as it is mainly concerned with giving us one of those innocent pleasures which are part of the luxuries of life: and it is not at the luxuries that education first aims. Yet inasmuch as to make a perfect man, every faculty should be developed to the highest possible degree, and seeing that colour so early attracts the child, at a time when the purely intellectual faculties are but feebly developed, nature seems to bid us pay attention to that first: how then can this best be done?

Man's senses appear to be so adapted to his environment, probably by change from generation to generation, that it is difficult to suppose that external impressions, slight though each may individually be, are not constantly tending to modify the mind which is subject to their unceasing impact. How long it takes for repeated impressions to produce an abiding effect upon the mind, or whether an isolated impression may not do so, are questions which we need hardly attempt to answer now: it seems enough to ask here that it should be granted that such modification is conceivably possible even from slight impressions: from which premiss it would follow that for perfect development we must be most careful about our children's surroundings from the very first. It is not unnatural to assume that early impressions, if not the most exact, are at least more lasting than impressions of later years—that the brain is more receptive: otherwise it is difficult to understand how the infant can in so short a space of time adapt himself to his surroundings in the marvellous way he does. Hence it is needful in training the colour sense aright to take care that our rooms are decorated artistically, our dress not in glaring defiance of art laws, that everything that meets the child's eye be not jarring or even crude. And yet too great subtleties may be a mistake. The broad harmonies of colour must be attacked first: minute differences of shade must be left to be developed as the mind's perceptive powers grow more exact. Soft tones, the differences between light and dark, the recognition of the same colour in different materials and different textures—these must be our aim at first, and doubtless much may be achieved in this direction even in the silent years of life by judicious selection of wall-papers and pictures, by putting before the infant coloured balls or books, and by those countless other means which suggest themselves to any mother who thinks. But the mere presence is not enough—we must have variation and change. And here appears an intellectual element—the process of

comparison, the process of discrimination. The presentation of objects identical save in colour will make colour stand out in a salient way before the budding powers: and if this be followed and interchanged with the presentation of objects alike in colour but different in shape, we shall deepen this impression and train the mind at the same time to new discrimination. In such exercises it is well to confine ourselves, if possible, to simple geometrical shapes, so as to introduce few new elements at any one step. At first of course such a process is far removed from a strict training to the perception of beauty: it is as it were the alphabet of art—learning the indispensable elements, not unmixed perhaps with drudgery, without which we cannot hope later on to rise to the deepest artistic enjoyment. And it is also necessary to instruct the child in the name of the colours at the same time: a good deal of so-called colour-blindness is little else than an ignorance of names. It is indeed to some extent an open question how far colour-blindness is a sense defect, how far it is merely want of training. Science tells us that it is due to a defect in the rods and cones: but against that has to be set the remarkable statement made by one leading investigator, that after examining some thousands of persons of both sexes, he found that of men about 5 p.c. are colour-blind, while he never met a woman in like case. Even allowing that occasionally women may be colour-blind, as other evidence seems to prove, still the fact reported leads to the surmise that the defect is not always really physical, that the greater sensibility of the average woman may be due to her long training in matching colours and their careful discrimination. And the fact that early races do not distinguish colour with anything like the precision of later civilisation, seems to point in the same direction—that the sense of colour is one largely improved by training—one that needs handling as much as any other of our faculties.

For this careful training we require a regular scheme—a carefully thought-out grammar of colour. To begin with we

must be careful to give clear impressions of the distinctions between the primary colours: we may then pass on to different shades, then to mixed colours, and so gradually through the whole gamut. But such training should not be left to chance: it is possible to occupy with interest and profit the early years of the child in this colour discrimination. Nature points the way, for the keenest delight of most young children is in bright colours: and if their associations seem to us gaudy, they are but following the development of the race, from the delight in flaring colours shown by primitive nations up to the most refined combinations of the highest artistic sense. But it is important to remember that every clashing combination may be detrimental to the steady and progressive development of a pure artistic taste: it takes long to eliminate the evil effects of wrong training at the start.

Practical work must form part of the instruction in the training of colour sensibility, as much as in any other branch of education. It not merely interests the child keenly, but is the only security we can have that our instruction has been fully grasped. And it seems certain that in teaching the use of brush and pencil, it is far better to begin with colour than with an attempt to teach form: not merely is the latter for the average child more difficult, but it does not attract him in the same way. "Blobwork," the painting of flags, the copying of simple coloured designs, independent roaming of the individual fancy, the filling in with colour of given outlines—all these methods may be of use, and they help in that perfect training of the hand which is of so high an importance for the full development of our faculties, and for enabling many of us in after life to adapt ourselves to certain pursuits with the least loss of time and of energy.

Into the question of full artistic training it is scarcely necessary for us to go. Such a training is for the few to whom it is really technical, and for those happier souls who have the time and means later on to devote to it. If we are given in

early years a healthy colour taste, and have grown up in association with good harmonies of colour, we are not likely afterwards to fall back into the worship of the gaudy or the vulgar or the trite, or to fail to appreciate, at least to some extent, delicate artistic work. No doubt it would be well if we could all technically analyse the colour scheme of a given picture: but we cannot all do everything, and the aim of education in general must be to lay such a foundation as we can build upon with security, if hereafter our special interests lie in a special direction.

The consideration of colour has brought us by natural steps to the important question of the training of the hand. It has already been mentioned that our space-perception is probably given us partly by the eye, partly by muscular sensations: so that we are now approaching a more complex subject than one which depends on the eye alone. Space-perception is bound up indeed with light and shade, if not with colour proper, but it is also bound up with form: and the next subject naturally to consider is the question of training to an understanding of form. In this both hand and eye must share: we are no longer limited to immediate perceptions, but are dealing with material where a large element of inference gradually creeps in. If on the one side form leads up to art, on the other it leads up to the severest of the pure sciences—geometry: we are approaching the training of the intellect proper, though we have not yet parted from the training of the senses and of emotion.

The study of form it is best to begin by direct association with hand activity, to attain which end we must turn to modelling—really the foundation of the plastic arts. Here nature with a loud voice calls upon us to follow her guidance. The supreme delight of childhood is making mud-pies or building castles on the sand: guided by sympathetic teaching, this instinct shows the way to manual training proper, to the appreciation of beauty as revealed in form, to the development

of perseverance and great exactitude, based on a loving interest in the work done. It is work well fitted, at least in the rough, for even the days of babydom. It should precede in its early stages the use of the pencil, perhaps even the use of the brush, for its concrete nature adapts it well for the period before abstraction has gone far: yet it means a close training in detailed observation, and will facilitate the study of pure outline later. The training is different from that of the pencil, not affecting so much the smaller muscles of the fingers as the general delicacy of the sense of touch, but it helps, as does the pencil, to a control of movement—to a co-ordination of effort with idea. Inasmuch however as the abstract remains embodied, modelling better than the pencil helps the unfledged mind to separate the abstract idea from its surroundings, shape from the object in which the shape is found: and this is the reason why in rational training a modelling course should precede drawing: the child has arrived by his own experience at ideas whose meaning he will understand when at last he proceeds to the drawing of pure form.

In all education it is important to begin with the simplest elements, from which we advance to the more complex. At the same time this rule is liable to be crossed by other considerations—that, for instance, we must work from the known to the unknown, that we must contrive to begin by what, of itself, or indirectly, will tend to excite interest. In the study of form in the abstract then we shall try to base knowledge upon elementary forms, such as those of which Froebel has made use, the sphere, for instance, and the cube. But the sphere and the cube rarely occur in nature: they are not such forms as the young child will see much, save through the instrumentality of man. They are to some extent the result of abstraction, and therefore it may be supposed that some gradual leading will be required to enable the child to grasp their import. Even the ball, so natural a plaything, will

attract the child by virtue of its use, not by virtue of its form. Moreover the monotony of these forms is a point which tells against them: interest and attention depend largely upon variety, and of this such a form as that of the cube is in itself totally devoid. The Kindergarten indeed masters part of this difficulty by using the forms as a basis for mathematics, and by the process of building smaller cubes into larger, or splitting the larger into the smaller: thus by appealing to constructive instincts it gives an element of variety and life to objects which in themselves seem quite devoid of them. But this is scarcely the best beginning for training in the perception of form: we can probably make a more effective start by dealing first with forms which are not so regular, by using the objects which nature presents to us apart from any process of abstraction. A child, even a child of some growth, does not try to draw, if given a pencil, a geometrical shape: human figures, animals, trees, objects with some element of artistic beauty, objects above all which move—these are what he tries to reproduce for his own amusement, thus pointing us the way. It is true that all instruction requires the instructor to analyse complex wholes into their parts, if the instruction is to be complete: but the analysis must not in artistic matters be the first opening, but the later stage: it must arise naturally out of earlier efforts, the failure of which will show the child that his first ideas are not clear—that the subject must be taken to pieces bit by bit, and each bit studied apart, if we are to arrive at perfection. In this way we shall in due time reach the pure geometrical forms, interest and desire for greater perfection stimulating and guiding us all the way.

These reflections prove that the terms simple and complex, as given in the ordinary working rule, require for exactness to be carefully defined. Simplicity or complexity does not here mean, or in perfect education should not be held to mean, consisting of one element or more than one respectively: each term refers to the child's experience, simple objects being those

which he meets frequently and as wholes, complex those which he does not so often meet, but which are formed by the combination of simple objects as just defined. Conversely simple objects may by analysis be broken down to their constituent parts, these parts, not usually met with alone, being from the child's point of view, complex: what is simple, in fact, is what occurs as a whole in the ordinary run of experience: what is complex is that which by analysis or composition is usually to be obtained only from those simples. In the initial stage of mental development by simple is not meant an ultimate element which refuses to admit of further analysis: it means what is in itself one, what is known to the child as a connected whole. This explanation is of great importance in the matter of language teaching, where the simple is the simple sentence—the form at first usually met—, the complex either the constituent words isolated by means of analysis, or the complex sentence, that is, separate clauses joined till they form an organized unity. It is important to realize that the simple is not here the ultimate irreducible element of speech—the word, but the simplest combination in which that element finds its full meaning, viz. the sentence: otherwise if the simple means the irreducible, we ought to go even behind the word, and start with the simple letter—which some unhappily do.

How then shall we begin? Shall we exclude at first geometrical forms entirely, and let the child wallow in the profusion of nature, involving, through desire to do too much at once and crowding the mind with a mass of complex details, a large waste of effort? By no means: such a method conduces neither to the exactness which is the underlying aim of the instruction we would give, nor to the real enjoyment of artistic work which is here our secondary purpose. We need not exclude the pure forms, though we must not at first lay large stress upon them. Rather we shall begin by appealing to observation and then to the faculties of differentiation and

comparison, working upon the objects nature yields us in abundance or the familiar products of man, for while with them we can emphasize form, we can also attract by other points of interest. Let us lay for instance before the child a collection of leaves from different trees—those objects which are perhaps the nearest approach in nature to the presentation of form in two dimensions only. We can for the time disregard thickness and so get rid of one element of complexity. The curves of leaves are beautiful in themselves, not with the abstract beauty of geometry but with that living embodied beauty which is the delight of the artist and of the child. The child can be set to find for himself other leaves similar to those laid before him, and others again approaching them or unlike: he can classify all in different groups circled around a given type, and so will be practising the two important faculties which lie at the basis of our reasoning powers, while still not neglecting the cultivation of beauty. Nor is it difficult to get him to attempt to copy the shapes, even though at first it merely be done by pencilling the outline round the leaf itself. Berries can be used in a similar way, though they tend more directly to the study of three dimensions. Crystals, if procurable, form an excellent transition from natural beauty to geometrical form: while it might perhaps be possible to construct a sphere from a material which, being capable of compression or admitting certain changes of shape, would lead the child to grasp the essential differences between the most important curvilinear forms. But the great difficulty which hampers the study of such forms is that few are to be found in a perfect state in nature: and unless an object have some element of beauty or other source of interest for the untutored mind, attention will flag in the very young, and we must postpone the chance, till their powers are more developed, of instilling as it were in an indirect way the elementary understanding of geometrical form. As the mind develops we can, building on the foundation laid as just

described, extend our operations to form more rigidly: we can then introduce the unbeautiful cube, and by regular process of differentiation and comparison drive home the important fact that nature as we see it is not built up on geometrical lines. The attempt to draw figures in three dimensions will be beyond the power of the ordinary child: it may be wise to wait before we try that, till the child himself actually suggests it. But in general, handwork, whether drawing or construction, must accompany the mere intellectual study, nay, perhaps even precede it: for we have to train the hand as well as the eye, deepening knowledge and increasing its interest.

It is not the purpose of the present work to draw up in detail a scheme of treatment for every branch of study pursued, but rather to weigh and discuss principles, with so much of illustration added as may be needful to throw them into a clear light. The practical teacher, if worth his salt, will be able to devise new exercises for himself. But one point must be always borne in mind—we must leave as much initiative to the child as possible, rather following and guiding him than actually leading. For if we too often take the initiative, in our desire to secure methodical and perfect development, we are in danger of killing the noblest of all gifts, that of inventive originality. There is a training that kills and a training that gives life, and unwillingness ever to follow the child's guidance, the guidance, that is, of nature herself, will end in disappointment and stunted growth, in the loss of interest and failure to progress.

The exact observation of form, the attempt to copy it with pencil, clay or knife, the searching for like forms and the placing of these by the side of the old ones, whether to throw up their similarity or diversity—all this is the beginning of classification and of that training of the hand which is so important a factor in the full development of intellectual power. And it must be observed that we are still confined almost wholly to the concrete: the abstract is as yet putting

forth but tiny rootlets—rootlets indeed which will grow by degrees, but which, if forced, may wither altogether. The age of abstract thought is not yet come. Activity, physical activity, must be our base: the mind will operate for itself at first, building up notions of concrete reality, which involve indeed a process of abstract reasoning, though it is impossible for the child to formulate the nature of that process, even in the depths of his own thought. But classification of given objects is of inestimable value in helping the process forward: the observation of difference is perhaps the most important of all single steps in intellectual movement, and observation is clinched by the attempt to reproduce the difference observed by the eye or the hand: the minutest variations are thus brought home to us, and the difficulty of reproducing them gives important moral training—the need of perseverance, the conquest of obstacles, the subjugation of our own will.

The training in form thus described is really a beginning of manual training—that training which our surroundings from the earliest years all combine to give us, but of which we lose much of the advantage because we do not systematize it enough—do not make it the sound foundation of a true scientific education. All things work together for our good, if only we would see it and with voluntary action co-operate so far as we can. And though in considering the theory of education we may lay stress upon the advantages of a given pursuit from one point of view more than from another, it must be remembered that no one object makes upon us only one impression (we perceive—or apperceive—more than a single quality), and that while we may be aiming at manual dexterity, we are training to a perception of many qualities—difference of texture, difference of form, difference of hardness, difference of weight, difference of colour, difference of use—difference in fact in all those countless points which make what we call an external concrete object. And more still: by this apparently outside process it is the mind that in the long run is being

trained: it is learning to use its powers in a way which may be of value in dealing with subjects very different from the concrete presentations of the external world. Hence it must not be thought that when we propose methods for training the sense of form, we are not at the same time training other perceptive powers: only we find it desirable for the time being to emphasize the one special object, as being our main aim. If then we say that training must begin with the correct perception of colour and form, it is not to be supposed that training in other ways does not go on at the same time: indeed a child will have made much advance by its own effort before it is desirable for us to step in with systematic and formal instruction.

But though the teaching of form leads naturally to manual training, it may be well to turn aside to consider the training of the ear, before we go on to the more complex subject of the full education of the hand, as ear-training, though involving perception of more than one quality, deals with what is in one sense a far simpler material. The training of sound-perception indeed stands apart from the ordinary line of intellectual development: important though it is for the purposes of pleasure, opening to us an avenue of artistic delight which for most people is one of the purest, it has little direct tendency to develop the mental faculties, the scientific analysis of musical sounds and their relation to each other scarcely forming part of musical training as a branch of general education. Music is *per se* a moral agent, not an intellectual.

It is remarkable that a young child is frightened by sound far more easily than by light. Whether it be that in light the difference is one chiefly of degree, not of kind, whereas in sound the usual difference lies as much in quality and this is all-important, or whether it is that sound touches the emotions more directly and vividly than light can do, or whether again it is mere suddenness of impact that constitutes the essential point—these are problems it is difficult to solve: but the fact

remains that the impression on the ear seems to possess a greater intensity, to attract or to repel more strongly than an impression of pure colour or light on the eye. All of us would probably admit that sound comes more home to us than light—that it possesses an undefined, tangible kind of nature, making an almost tactile impression such as light never does save when most intense. If this is true it may be the reason why the fact cannot be turned to use in training—for it is not sense-impressions, standing alone, that train the intelligence: they only give the material:—but it is worth drawing attention to the point, if only for the possibility that we ought in training to begin with the ear rather than with the eye. Is it not the case that the attention of an infant can be caught by sounds earlier than by light?

It is probably impossible to begin too soon to habituate children to the hearing of sweet sounds. The mother's song by her infant's cradle seems to be the pointing of nature in this direction, and though there are probably greater differences in natural susceptibility to and enjoyment of sound than light, yet it is hard to conceive that any one is not capable of enjoying music more through early training. There are two points to be aimed at in early musical training—difference of time and difference of tune. Quickness of perception of these two elements is far from being always concurrent. One child will have a good perception of time with but little perception of tune, while the reverse condition is perhaps less common: in other individuals both susceptibilities exist in a happily balanced combination. In any case the training is a training in exactness, involving attention with all its mental and physiological concomitants. Elementary training has been well worked out, especially on the Tonic Sol-fa system, and both elements are taken into consideration: the delight afforded is immense, and a foundation well laid for pure enjoyment in after life. The difficulty is the combination of theory with practice. The voice must be used from the first,

and this cultivation can start quite early: instrumental music is more difficult. There is a vast amount of drudgery to be gone through before one can approach even tolerable perfection: how best can we help the child through the strain? The essential point is not to begin too soon, and to take easy stages and brief spells at first. Once the child has begun to perceive the beauties of music, there will be a great stimulus given to progress: but to set down a child to learn the piano before he has an idea of the co-ordination of sounds or of the delight that comes from harmony, is to run the risk of killing interest in music for many years to come. But this was the old way, not yet, it is to be feared, altogether extinct. In many cases the elaborate learning of an instrument has to be abandoned as waste of effort, though to learn the elements may be good for every one.

But the training of the ear to musical perception is not the only training which that organ requires, nor from the large social point of view the most important. Accuracy of hearing in ordinary speech is of great importance too, and it only requires a moment's thought to realize how deficient in this respect the average individual is. Children require to be taught to listen carefully, and to distinguish sounds which may be similar but not quite alike. Such training is possible from very early years, and is continued in the school in the form of dictation, especially dictation in foreign languages, and the learning of foreign pronunciations in general. No doubt the difficulty of learning another language is largely due to want of training in distinguishing sounds in early days. To us English with our habitually clouded pronunciation and impurity of vowel sounds, such training is really of vital importance: if it were systematically pursued, we might do much to destroy the ugly dialectical pronunciations which are so common, and might even check the spread of the vile Cockney accent which bids fair in time to swamp the whole of pure English.

Concurrently with ear training will go the training of the voice, the spoken as much as the singing voice. In how few schools, still more in how few homes, is a moment's thought ever given to the proper production of the speaking voice! And yet the matter is important, for physical reasons of health, if for no other. In later life few men pass their days without having at some time to speak in a room of more than ordinary size: is there anything more annoying than to listen to a speaker whom one cannot hear, or to be oneself a speaker to whom the effort is so exhausting that half one's force goes in merely making oneself heard? Yet the elements of good elocution are easy to learn: and the multifarious opportunities of ordinary school life should enable us to remove from ourselves the reproach of being the one nation that never speaks clearly. Good expression is a more difficult matter to compass, but even this can largely be taught, partly by example, but above all by taking care never to set children to read aloud a piece requiring expression beyond their years. A child who has mastered clearness of speech and understands his subject, will read as a rule at least adequately, unless he has been spoilt by artificial forcing to render emotions he cannot yet feel, or unless overcome by self-consciousness. There seems an almost inherent tendency in teaching elocution to lead to artificiality: even some of our best actors have not escaped the danger. And yet artificiality is entirely unnecessary.

So many-sided is the mind of man, that, as our discussion already shows, the pursuit of one end in education helps us to others beyond our chief aim. The training in form has already required that we should devote attention to the control of the hand-muscles: training in instrumental music leads in the same direction. To have control over our muscles would in any case be important, even if no gain accrued to the intellect: but control of the muscles, especially of the hand, is in truth not merely of practical value, but is also one of the surest

means of awakening intellects apt to be torpid. There is not merely the case of the child who, dull at books, is keen in the workshop, but there is evidence to prove that many a child to whom, though he is not really deficient, the school routine is dull monotony, unable to stir the intellectual powers, is roused to a new life by manual training—a life which proves itself beneficial not alone physically, but also in awakening the powers of the mind at large. Children who at first seem below the average have been known, on being given a year's course of such instruction, to recover or develop a kind of mental tone which enables them afterwards to return to school routine, and take ordinary work with complete success. Pathological cases often have great value in showing the proper treatment of normal types. The cases described point in the same direction as the observation of children usually considered normal—to the conclusion that manual training is the proper basis on which to build intellectual efficiency: that doing, not learning, must be our aim for many years, and that strict training to abstract thought must arise by steady and natural development out of practical work. For the activity of children in their early years, perhaps to even seven or eight, is entirely or almost entirely devoted to constructiveness in some form or other, destructiveness being, from the philosophical point of view, but a different aspect of constructive activity. The child's aim is to learn the build of things both by analysis and by synthesis: it should be our aim to guide him in such a way that as little effort as possible may be lost, as much gain as possible be won. Not that we are to interfere at every step. Initiative must be left to the child himself, if he is not to become a mere machine dependent entirely upon the suggestions of others for setting himself in motion: of all mistakes in education the worst is to deprive the child of spontaneity and the power of standing alone. But bearing in mind how throughout life we are constantly improving the accuracy of our muscles, how the whole world seems so

arranged that our muscular sense shall never lack development, we need perhaps have little fear that we shall go too far in the direction of guidance: we can watch our opportunities, and formal instruction can be made to fit in so exactly with nature's training that it shall suggest new occupations for the child's free adoption involving less loss of effort and time than if he had to work out his own salvation. And after all is not this the strict theory of education—the following of the guidance afforded by nature in such a way as to save unnecessary work? Regularity is the keynote of that education which best will develop our intellectual powers—regular advance from concrete to abstract, regular advance from simple to complex.

To what point then have we now reached in the system suggested for early training? The definite pursuit of colour and form has led us to put in the child's hands—apart from clay for modelling—the pencil and the brush—instruments requiring much delicacy of handling and leading to the control of those small muscles on which success in handwork so largely depends. And instrumental music again trains the small muscles: is it wise to begin with these rather than with those larger ones which seem easier of control? Probably it is, despite the fact that the smaller muscles tire more quickly: for the larger require more of strength, find more easily development for themselves, and do not need that elaborate training which is so indispensable in the case of the smaller. So that we seem right to begin with hand and fingers, postponing the training of the muscles of the forearm till the children are of a larger growth. And indeed in any case from the intellectual point of view, the training of the larger muscles has not the same effect upon the development of the mind. There is not the same need for exactness, not the same opportunity for comparison and differentiation. Hence the opportunities for inference are less, even though we gain something in the estimation of weight by having recourse to the more powerful muscles.

What then is the aim of manual training? And what its means? The aim is the same as that of all education in the unspecialised stages—the development of every faculty of which we are possessed, and the giving to the child of as many interests as possible, thus contributing to accuracy and to flexibility at once and the later enjoyment of this many-sided world. We do not aim at producing efficient carpenters or mechanics—we aim at producing efficient men. Hence we shall not be content with mechanical work, turned out it may be without a flaw: we shall require a reason for the faith that is in the child—not mere imitation, but an argued exposition of the reason for doing his particular work in a particular way. Measurements will be required, measurements of ever increasing accuracy—plan-drawing and drawing to scale, finished work, no scamping, no resting content with a general approach to accuracy. We thus foster, not merely the love of accuracy, but the pride of the artist in a perfect work: we stimulate the desire for perfection, the love of the ideal.

Activity then is the keynote of our early training—physical activity, but physical activity regulated by the fact that our aim is intellectual development, so that we must miss no opportunity of leading the young mind to fundamental principles. In this way we are preparing for the transition to pure thought—the activity of the intellect apart from the hands: and though it is impossible to divorce the two entirely, and though the mind must have been active from the very moment of birth, yet the formal training of the intellect as a branch of strict education, may with reason be discussed as an independent matter, and with equal reason the law may be laid down that such formal training must be later than the training we have just been describing—later at least than the early stages: that mental training proper—no matter what the child may pick up for himself—should not begin till the training of hand and eye has enabled the child to concentrate attention and taught him both control of his muscles and the possibility of working

through more or less of drudgery to a distant end. A definite age cannot be fixed in this or in any other branch of education: but the child's own enquiries and judicious observation will show when the mind is ripe—when we hasten growth, physical as well as mental, by starting education on the more abstract side.

CHAPTER V.

THE CLOSE OF THE FIRST STAGE.

NUMBER is the first and most important point in the early training of abstract thought. Counting can begin quite early, but it must not be divorced from concrete objects. Nor shall we, if wise, attempt all numbers at once: we shall start with the unit and build up other numbers by gradual additions, one at a time. For a year we shall have plenty of occupation in the relations of numbers up to ten—addition, subtraction, multiplication and division—all can be worked in. The split cube of the kindergarten is of much use: diagrams of squares can be introduced quite early, and by these and other tangible means we can introduce the child to the simple features of fractions. Early familiarity will do much to meet the difficulties which faulty methods of later teaching and the failure to analyse the conceptions of number from every point of view in the elementary stages often fail to conquer. In time the child, with the relations of the first ten numbers fully grasped, will be anxious to advance beyond: he will probably suggest the forward step himself, and the guidance he gives we shall do well to follow. But still our progress must be gradual —no jumping from ten to a hundred: but when we come to the second decad, we shall linger long over that, as it affords us a chance of illustrating in great detail the principles which will

have already guided us in dealing with the first ten. Let the child become mechanically familiar with all the possible relations of each ten before he proceeds to another: let his knowledge have passed from the reflective to the reflex stage, so that it becomes impossible for him to make a mistake. We shall thus lay down a solid foundation on which we can later securely build. But as this is more nearly pure abstract work, even though developed systematically from the concrete, than any other with which the child will have to deal in perhaps the first seven years of his life, we must be careful at all times to make our lessons short: even ten minutes may be too much at first: we must always be on the watch not to make the child weary, or we kill the interest which is our main propelling power.

Our lessons on form, based, as we proposed, on natural objects—berries, leaves, crystals and the like—bring us into the closest contact with nature, and we can avail ourselves of this opening to lead the child's mind to the beauty and interest of nature itself—to lay the foundation of natural science. Botany springs naturally from the study of form, and if at first it is simply the collection of different plants, the observation of their differences and the learning of their names, we shall lose nothing, nay, gain much. Classification involves many a valuable process, and all children show a love for this work, even if only in such material as stamps. But we may hope that rational training will raise their minds higher: if not, we may utilize even that interest by basing upon it something of history and geography. In any case we must proceed from the known to the unknown, explain the points which children notice for themselves, and by judicious leading—not a constant endeavour to force a lesson, than which nothing more easily grows wearisome,—show them how nature is based upon laws which they can observe and understand for themselves. The naming of plants, the watching of them grow, the care of them and planting them when the children are old enough—all will

lend interest and serve to give food to the growing mind. It will be the child's introduction to a more complicated material than anything with which he has had seriously to deal; discrimination will come prominently into play, accompanied by that interest which is always felt, we cannot explain why, in watching change.

The kindred science of zoology is not quite so easy to handle. It is liable to the moral objection of cruelty, at least in many cases. The keeping of pets is a very difficult question, save in the case of the strictly domestic animals—those which are bred and brought up by man, and which naturally now look to man for support. The dog, the cow, the horse, the sheep, the cat, the pig—on these we may legitimately train the child's love of living things: but what shall we say of rats or rabbits, or still more the keeping of birds in confinement? This surely nothing can justify: we lose by the blunting of the child's moral sense more than we gain by the training of his knowledge. And the great naturalist observers do not watch creatures in confinement: they go into the open and observe them in their natural state. In this process too there is for the child the additional pleasure of open-air work—no small gain to set by the side of the apparent loss in not having the subject for observation always close at hand. Moreover by observing wild life in nature, we are training to keenness and quickness of observation—a great gain, whatever the child's after career. Certainly we must try to interest the child, and that quite early, in animal life: the life of plants, comparatively still, will not possess for the opening mind half the fascination of a life more nearly akin to the child's own into which he can enter so much more fully.

Multitudinous ways will occur to any thinker of enabling us to co-ordinate the various branches of study we have thus opened up—to make drawing and painting assist botany and zoology, and both to aid the science of number, and by the use of simple songs to add fresh colouring of delight to every

piece of knowledge we acquire. For, as Herbart showed long since, it is of great importance throughout education to aim at developing as many associations of any one subject as we can with others: we strengthen in this way the interest and the memory, and we develop flexibility. The child has to realize the vast complexity of the world, and the more sides we can show him to any object or pursuit, the more fully and the earlier will he learn this lesson. Hence it is that though we treat of each subject separately, in actual practice we can never isolate a pursuit. True knowledge is one organic whole. It throws out feelers in every direction, seeking to bind itself to as many supports as possible: it is our business to help to provide these supports, to give life to the spreading tendrils and strength. Moreover knowledge grows by slow digestion of the mind, by those imperceptible unconscious thought-processes which are ever going on in the depths of our being whether we wish it or not. Time is essential in the growth of knowledge, so that the earlier ideas enter into children's minds —ideas, that is, within the compass of their powers,—the more sure we are that they will be retained, drawing to themselves sustenance we know not how, and becoming an organic living part of their whole conscious and unconscious life. And the more roots the young plant of knowledge can throw out, the more sustenance will it gain. Each new aspect of a new subject, each new subject is a fresh soil: fresh matter for nutriment is to be found in it: and if we accustom the mind to be ever on the search and take care that the nutriment be presented in a form easy to assimilate, we shall be training the mind to be always alive, imbibing fresh draughts of vigour even when it seems to be merely letting pass impressions as they strike it in an unmarked stream. For the really living mind is always alive: there are no lapses into absolute insensibility to impressions. We may not be conscious of them, but the impressions leave their mark: somewhere in the subliminal consciousness an indelible record is taken, which

may rise to the surface at unexpected moments to turn it may be our life stream in an altogether unexpected direction. We never know of what use odd material may be: it is our business to bring the mind as a registering instrument to perfection, and this can best be done by practising it to receive impressions of all kinds, and teaching it to retain them by as many links as possible with other impressions already formed. Those links will be, if not in the first place forged, at least finally welded into unbreakable masses, by operations of which we remain unconscious: we must give these operations the chance of being performed in the most effective way possible, by presenting the mind with sufficient variety of material on which its activity may be adequately fed.

It is the existence of this faculty in the mind, this power of strengthening in the chambers of unconscious thought the hold which the mind has on any one point, that is the justification of the teaching of many subjects which may seem to have no bearing on the after life of the child,—that is the condemnation, if any were needed, of early specialization with a view to some special career,—that is the fundamental reason why flexibility is chosen as one of the two great aims of education. The more of suitable food the mind has, the stronger it will grow, and the more secure will be its hold on every particle of knowledge which is presented to it. And this because each particle of knowledge has so many aspects that we are constantly arriving at fresh relations between it and the rest of the known world. For the acquisition of knowledge and its proper handling the unconscious working of the mind is perhaps more important even than the conscious: a consideration which leads us to another great conclusion—that the mind must be left alone: it must have intervals of repose, during which it can chew the cud of knowledge. Hence holidays and limitations of the hours of work: the brain that is always consciously working will lose freshness, and in many cases have a less secure hold of that which it does know than

the brain which seems often to have idle fits. This is a weighty point, not merely for education, but for the whole of life. All work and no play makes Jack a dull boy, and this not merely for reasons of physical refreshment, but for deep-seated reasons of the organization of the mind itself: nature never acts in a hurry: she moves ever, but moves with repose.

Incidental reference has been made above to the introduction of songs to develop interest in the work which children may be pursuing. This is a beginning of the training of the mind in another of the graces of life—the appreciation of good literature, and the development of the imagination. This training will begin quite early, almost in the cradle. Mothers' songs and nursery rhymes are the first breaking of the ground, soon followed by fairy tales—that great delight of the young mind. It is unfortunate that the mass of our traditional nursery rhymes are of such a banal character—no artistic beauty, no character study, not even humour for the most part is to be found in them. Fresher ones, such as those of Miss Greenaway with her charming pictures, have indeed some of these characteristics: but they are hardly as wide spread and universally known as could be wished. And yet the importance of the elementary development of appreciation of literature is as great as the importance of the first steps in any other pursuit. Happily there is an abundance of excellent poems for children, as well as fairy tales and such stories as those of Hans Andersen, to enable us quite early to give the desired bent to the children's imaginative likes and dislikes. Such training can commence long before the power to read is developed: children's memory for what interests them is so strong that they can be made to commit excellent models to heart—indeed will of themselves object to the slightest variation from the established version of a well-known tale. Human or animal interest is what is chiefly required in the material we lay before them, with, in the case of poetry, a pleasing lilt in the metre: a poet indeed is a child grown

large, so that it is but natural that his work should appeal directly and forcibly to his closest kindred—the undeveloped imaginative child. In remembering poetry the child of himself trains his mind to exactness, and indeed to logical appreciation: given the premisses, however extraordinary, what is natural and logical he distinguishes unerringly from all that is unnatural and stiff. If taste is not corrupted by bad models, we may feel safe in believing that it will run on proper lines.

At this point we may pause a moment to consider what we have already achieved and what will be the next forward steps which a rational system will lead us to take. Starting from the principle of training to accuracy, bearing in mind too that our ultimate aim is to make the mind as flexible as possible and to give interest in all those activities of the world, which, if not for the majority of any direct bearing on success in life or the immediate training of the intellect, are yet of incalculable value as preventing our life from being a barren journey through waterless deserts—a dull monotonous grind in the quest of bread, we find that we have based ourselves upon physical activity as nature points the path, leading to the training of ear, hand and eye in such a way as shall contribute to the growth of our intellectual powers and to the fostering of a rational many-sided interest in all that concerns a man. We have taught the elements of number, colour, form and sound: we have learnt something indirectly of the physical properties of matter of a more tangible kind—smoothness, hardness, durability perhaps, and the like: we have laid a foundation for natural science, not merely for the physical, but for the biological sciences as well: we have opened the beauties of literature and music, and shown how every subject spreads into many branches—that nature is complex, that nothing stands alone. A large field to cover: but the world is large: and no education which is not broad of subject can in the long run be aught but narrowing. Abundance of food for varied thought has been given—food which will gradually be

assimilated in the hidden laboratories of the brain, and form a structure of mental power and ability which nothing afterwards can altogether destroy. Accuracy has been given, at least accuracy of perception: the observing eye and the working hand have been brought into co-ordination: beauty has been unveiled at least in part: we have been amassing the material for the higher developments of the brain: how that material can best be utilized is the subject that calls for consideration next.

CHAPTER VI.

THE SECOND STAGE.

It will no doubt have been observed that of reading and writing nothing has been said so far. Ground has indeed been broken in connection with their sister, number, but only in an elementary way: let us now consider the proper handling of these arts—the tools, they may be called, of advanced intellectual training.

It is difficult in discussing education in theory to define the ages at which a new study should be started. Children differ so much in native capacity, not merely in general, but for particular pursuits, that it is impossible to lay down an age-limit for the adoption of any fresh branch of education. But roughly speaking we may say that the curriculum sketched above will suffice for the child till the age of five or six. At this time reading may not be premature, leading up soon and concurrently to writing. The delicacy of observation which is needful for reading and the control of the muscles required for writing, have both of them been to some extent reached in the earlier training suggested. But we shall not, if wise, when we wish to start reading, follow the old practice of learning by heart that formidable word of twenty-eight syllables, commonly called the alphabet. Such an unmeaning word—a great labour to most children—can be kept till the time when they

can read for themselves and can perceive the utility of a fixed order of letters. If we begin with a proceeding of which the usefulness is obvious only after long lapse of time, we do our best to kill interest at once and to awaken disgust with a difficult subject which, despite its difficulty, if rightly handled, can be made into one of immense interest. The system adopted by Miss Dale of starting children to search for and analyse sounds, and of representing classes of sounds by fixed colour—the personification, as it were, of both letters and words,—is based upon two important principles, the appeal to the activity of the child himself, and the fixing of fresh knowledge by the play of imagination and the use of material already gathered. Colour and form are both appealed to: inventiveness and observation are alike brought into play: and moreover we can be guided, as in all education we should be, largely by the children's own suggestions and desires. To be willing to be thus guided will enable us often to avoid the impossibility of laying down fast rules for the time of starting a new branch of knowledge: when the children, for instance, express a desire to learn reading, we shall probably not be far wrong if we determine to make a start. Common sense must of course be exercised in the matter: but curiosity is the source of knowledge, the finger-post as it were which tells us where to go.

The great danger in teaching to read is that we may overwhelm the children by the complexity of the subject. Analysis and selection are needed from the beginning, and if we can be helped by the children themselves, so much the better. They will like searching for the differences of sound, and will be keen to observe both resemblances and difference. Important mental processes are trained in this work: we not merely add to our knowledge, but we add to our power of mind. By operating upon sounds and classifying them, we may do something to get over the anomalies and absurdities of our current system of spelling—which indeed is the great difficulty

in learning to read at all. It is much to be desired that some rational method of spelling reform could be systematically adopted. To say nothing of the difficulties which would be spared every teacher, of the saving of time in learning to spell, of the saving of cost in printing of books, there is one paramount consideration which it is worth while to mention—the training in illogicality which we are compelled to give every child in his most plastic years. We English have the reputation of being the most illogical of nations: how far may not this be due to our complete disregard of law in the representation of spoken sounds? In a matter which is constantly before his eyes we habituate the child's mind to the thought that law is a thing of no importance: is it any wonder if his mind insensibly takes a tinge, and he comes to believe that in other matters also of greater moment we "shall muddle through somehow"? Education is, or should be, a training in law: we put needless obstacles in our own way by adhering to our barbarous system of spelling.

But such as it is, we have at present to work it and do the best we can. A system like that of Miss Dale may be said perhaps to be as good as possible, for it keeps irregularities largely in the background, and when they do occur shows them up in their true character. Writing, at first printing, is a natural outgrowth of the system, and after a time both go on concurrently. Writing is but a special form of drawing, and the hand which has been trained to copy larger objects, will come down without much difficulty to the more minute forms of our ordinary letters. We may indeed wonder why, with a shorthand script in existence, we should not all learn that instead of longhand: much time would be saved, both in school years and afterwards: but this consummation, though devoutly to be wished, is quite hopeless in our present stage of uncivilization.

Let it always be remembered that what the children can discover and do for themselves is of vastly more importance

than what they can be told. On this principle we shall take care, as in the early stages of drawing, to let the children, so far as possible, find out their mistakes by the use of their own observing powers. Progress will thus be far more rapid than if we merely tell them. Even if we have to tell them at last, the mere search, however unavailing, will have trained their observation and taught them self-reliance. We make any matter more our own by giving our own thought and effort to it than by relying upon the guidance of others who happen to be farther advanced than ourselves. The problem indeed of when to tell is one of the crucial problems of a teacher: nothing so clearly marks competence from incompetence as the way in which the demand for information is met. Never tell at all if the child can find out for himself—this should be our guiding principle: often, if the child cannot find out directly, he can be led by judicious questions to a new point of view whence the rest of his route he will see for himself: it is seldom a direct answer is needed, still more seldom the repellent: "No, I will not tell you—go and find out for yourself."

In mathematics we have already broken ground by the elementary study of number and form. In this second stage we can carry the work still further. By seven or eight the child will have a clear grasp of the relations of numbers up to one hundred, and perhaps beyond: if rightly taught, he will make no mistake in the four simple rules. He will also understand what is meant by fractions, and being always taught from the concrete, aided by sight or visualization, will have a grasp of the reality of numerical relations which will stand him in stead throughout life. In the early stage our first aim was accuracy, but we shall have made some approach to generalization by pointing out the laws of the relations of numbers so far as these can be grasped by so young a mind, and by making early use of simple factors. In the second stage we shall advance to decimals, teaching in the abstract, but, for

scientific purposes, in the concrete also, using the metric system. The actual measurement of objects will give the work required to convince the children that arithmetic, with its sister mensuration, is a very practical pursuit—the basis of scientific accuracy. We shall also lead to abstract thought in numbers, partly by problems within the child's capacity,—a point where a great deal of care is needed to ensure that the mind can do real work for itself, and not merely rely upon the instructor or work out problems by mechanical rules—partly by training to think of number in the abstract, i.e. in fact by starting algebra. The rigid separation of arithmetic from algebra is one of the greatest mistakes of our education hitherto, a mistake which is happily now passing away. After all the one is an extension of the other: the possibility of treating number by general formulae in the abstract instead of confining ourselves to individual numbers with their specific limitations, is a fact which gives us one of the widest openings for training the mind to abstract thought. It is true that we shall find in this particular point one of the most marked differences between different brains beginning to show itself very plainly, and that all will not be able to advance at the same rate: we must proceed warily, and be sure that everything is firmly grasped. But another danger attaches to this stage of number teaching, showing itself in arithmetic, but more markedly still in algebra—the danger of creating the fatal impression that our processes are nothing but mere jugglery, that we have only to apply a certain rule and that, whether that rule is understood or not, all will be well. Against working by rule we must be constantly on our guard. To counteract this danger inference is needed, showing the reasons for a given procedure: the child should be required, wherever possible, to find out new processes for himself. Theory must proceed pari passu with practice: it is a lamp to lighten our path. And given accuracy in the early stages, the real intellectual value of arithmetic and algebra lies solely

in the induction and deduction they afford—the training, in fact, of the higher mental powers. Mechanical routine in these subjects is fatal: the children ask bread and we give them a stone.

With our irrational system of weights and measures there will be a great deal of drudgery in certain stages of arithmetic, but it can be turned into a training in readiness of computation and to a certain extent in the application of old ideas to new subjects. In any case it exacts attention and perseverance, and though it may not be true that training one faculty will necessarily strengthen other faculties too, even though they may seem cognate—training for instance in mathematical reasoning will not directly train us to efficient abstract reasoning in the sciences of life,—yet such training will at all events teach us concentration, to watch for points of similarity or difference, to hold the subject matter closely before our minds till we have solved the problem we are considering. It is in this way, not directly, that training in one subject will be useful to the powers of the mind as a whole. We cannot urge that a training in mathematics is desirable because it trains to abstract reasoning as a whole: it only trains directly to valid abstract reasoning within the limits of its own and cognate spheres: we are no more justified in assuming that a good mathematician is therefore likely to reason well in another abstract science, say ethics or psychology, than we are justified in arguing that because an artist has great special manual dexterity, he therefore will make an excellent carpenter. General attention and grip may be secured, and this counts for much: but the mind is subdued to the material it works in, and every material of a new kind requires new adaptation of the mind to itself and itself alone. By giving a training in a variety of subjects we lead the mind to such flexibility that it can turn with effect in any direction: but that is a different point: flexibility is secured not by the application of powers trained in one subject to another quite diverse, but by the prevention of

mind-stuff from becoming set—the leaving the marks of so many diverse impressions that when we want to follow out one of the paths thus faintly traced, we shall be able to do so with ease, bringing to bear those qualities which are general and do not depend for their use upon any given subject matter.

At each stage we shall in our education endeavour to build on the foundations already laid, dropping nothing until such time as the exigence of the time-table makes it imperative, and not even then unless the subject we omit has been so well grasped, as far as it has gone, that its effect will never be wholly lost—that we shall be able thenceforward to take in the matter an intelligent interest, although compelled to abandon its pursuit for ourselves. Life is many-sided, and one of our main duties is to prepare for that many-sidedness. Much of life's evil springs immediately from the want of many-sidedness —the failure to find interest, though interests abound. And if it be urged that the scheme we are following will be so vast that the child will be dulled by excess of work, to that a double reply is possible: first, that if really dulness arises, it is due to the wrong presentation of the subject, which is not made interesting, as all work can be, if only the right teacher is found: and secondly, that the very capacity which childhood has for throwing off in a moment whatever is too worrying and starting fresh pursuits with such marvellous zest, its resilience and its power of living wholly in the moment, seem to have been given expressly by nature that the child may be able to go through the long period of constantly fitting itself for life, without exhaustion, without its vitality being sapped. Change of work is as good as play, especially when so much is of interest and able to be carried on under such varied conditions that every side of the child's nature can be duly fed. The child is meant to be occupied, and observation shows how much he requires, and how grateful he is for sympathetic guidance. He is anxious to learn when properly approached, and will take endless trouble to make himself perfect in a

subject which is of real interest to him. Time must indeed be left for self-development, but, that given, we need have little fear of overworking the ordinary child.

Treating as we are of the scientific and practical training of the mind at first, it is natural now to turn to the further development of the sense of form as it becomes scientific in the pursuit of geometry. With the shapes and the names of the ordinary figures the child will have grown acquainted in the first stage of his education, and will have certain knowledge of their most obvious qualities. This knowledge must be broadened and deepened, and the child led to base the whole securely upon wide and strict geometrical principles. To this he will be led by bringing into play his practical powers, partly by means of geometrical drawing, partly by the use of tools and making for himself geometrical objects. Here he will find the firm interest on which to base later his pure geometry. He must practise drawing to scale, and indeed in all his manual operations must draw, roughly perhaps at first, a sketch of the object he proposes to produce. But we must be careful not to start him on pure geometry too soon. Much of the difficulty which many boys experienced in learning the old-fashioned Euclid arose from the fact that they started too soon, and without proper training from the practical side. Abstract geometry must rest on practical work, either with the pencil or in the workshop. Many general principles will thus be gathered, perhaps at first in rather a disconnected mass: but all the greater will be the pleasure afterwards, when the children find that these heterogeneous facts can be summed up under broad rules. And the delight of drawing inferences, discovering laws and facts which to them are new, will give them that vitality of interest which is the basis of true knowledge soundly held. In general it is probably unwise to attempt the pure deductions of geometry before the age of ten: many will not be ready for such work even then. And it is a grave mistake of policy to start with a long series of

definitions and axioms which we are not going to apply for some time to come. Let nothing be learnt that is not to be put to early use: time is saved, and that vexation of spirit which comes from being led blindfold along a road trending we know not whither. Nor need we be too careful at first to secure rigid accuracy of definition. Approximations will do, if we do not learn the formulae off by heart: if there is any serious flaw, we shall be sure to find an easy occasion on which to show where the defect lies. We have to make it clear from the very first that the science of geometry deals with abstractions: it gives us the earliest and an excellent chance of showing what we mean by abstract reasoning. Though the object before us may have many other qualities than pure geometrical ones, we can easily lead the ordinary child to see that we are dealing only with certain properties which we wish to study by themselves: all abstract reasoning is in its essence nothing more than the study of certain properties by themselves, carefully chosen for our own ends and separated from the other multifarious qualities with which they are interlaced in the external world. Axioms, which are a summation of extended observations, may be taken for granted for a long time: the difficulty of understanding them arises largely from the fact that they are so obvious that they seem unnecessary. A student has been known to say, after weary weeks at Euclid: "I don't see the good of it: it is only common sense." When we have made frequent practical use of the axioms, we shall be able to formulate them for ourselves: they will then have body and substance, not be, as they are so often allowed to remain, shapeless intangible ghosts. Definitions also we shall take as we require them, leading the children as far as is possible to discover and shape them for themselves. And we must, though it takes time, habituate the children to see the figures drawn in every direction: why should we not also train them from the first to dispense with the figures altogether? The blind

make excellent geometricians: why not take a hint from them?

The training of the hand, which already is receiving additional exercise in the practice of geometrical drawing, must also be continued as a subject in itself, coupled with eye-training—its inevitable accompaniment. For this purpose we shall not make the abominations of freehand drawing inculcated of old by the South Kensington Department the mainstay of our work: we shall prefer to rest upon natural objects, beautiful in themselves. Nor shall we in model drawing—drawing in two dimensions from three—limit ourselves to geometrical figures: in the early stages we open with the beauties of leaves and plants, taking the brush to aid us in grasping complexities without too much attention to detail at first. Certain aspects of freehand drawing may be used in subordination: but in strictness such drawing should be merely occasional—an exercise to perfect our muscular control. For in general training the aim of art instruction is not the production or education of artists, but in the first place to develop an appreciation of beauty, in the second to strengthen the perception of detail and the power of approximate reproduction. Hence it is not necessary for ordinary purposes to spend on freehand drawing the vast amount of time that it usually receives: and the avoidance of the frigid form which, though really an outcome of the mechanical aims it was the legitimate purpose of South Kensington to prosecute, has unfortunately become established as well-nigh an ideal of art training in our schools, would leave the way open to other methods of teaching, which, involving beauty in themselves, would more adequately fulfil what has been laid down above as our primary object in general art instruction. The system associated with the name of Mr Ablett is much more worthy to be considered as reasonably approaching the two purposes named. But it must be remembered we are only laying a foundation: minute detail therefore is not at

present our aim: the general must precede the particular: and if we attend too much to the dry bones of perfect outline, conceived in purely artificial shapes—the ordinary view of freehand drawing,—we are doing our best to kill interest, and so far from fostering a sense of beauty, are sacrificing to pure dexterity of hand that far nobler and more important development of the emotions which is involved in the training to a love of the beautiful.

As however the child grows in years, and exercise becomes needful to approach more and more to pure art training as an end in itself, perfection of muscular control must be sought, and we are justified in reverting to what may be called the elementary drill, which we have passed over lightly in earlier stages—studying now, as it were, the hard bare skeleton, no longer the beauties of flesh and blood. And along with this development open out opportunities for combining with art training a fuller sense-perception, enlarged and perfected by intellectual connexions—reason being associated with the education of our muscles and the guidance of our emotions. At this point then we take up the formal side of art instruction. Through model drawing we lead to the important sphere of perspective, and give the children a subject which will have so much of interest that they will probably develop it by personal practice in their leisure hours. It will be impossible to continue the formal teaching of art to every child through his school career; but we must bring the children at least so far that they will be able to read correctly three dimensions in terms of two, make sketches for a common purpose with good effect, and, appreciating differences of colour, light and shade, readily distinguish good art from bad. How much is lost from the want of good training in the elements of art of every kind, only those can tell whose misfortune it has been to receive none adequately in their early days.

The practice of modelling, the pursuit of the plastic arts, in the second stage will, as hinted above, gradually sink to

a subordinate position. The deftness of hand which is one of its main objects, has to a large extent now been secured: the further development of the muscles of the hand may be safely entrusted either to the workshop or to the pencil and the brush. For girls indeed to whom the workshop is taboo—though really to right reason there seems much to be said for opening that to girls as well as to boys—modelling might be developed to a greater extent: but its chief use henceforward will be directly practical—the construction of relief maps for the geography lesson, or of other objects connected with various branches of study. But the gain secured in the perception and appreciation of artistic form will never be lost; and for those who show a marked talent in this direction, further openings might be secured, leading directly to sculpture: but such considerations belong to specialization—they are not within the scope of a general treatise on education. For our manual training in the second stage we shall rely more and more, first on woodwork, and then on metal work: which training must continue throughout the greater portion of this period. It must however, to be of the highest value, arise from a system based on intellectual laws, not be the haphazard, semi-technical training usually offered by a working carpenter. By means of such logical manual work we can teach argument in the practical sphere—the co-ordination of means to end, the drawing of inferences to reach a new result from portions of knowledge we already have. To translate an idea into external shape is of itself a valuable lesson. To say nothing of the gain on the moral side which results from this adoption of personal activity, the intellect receives an awakening stimulus which neither book-study nor any branch of knowledge which does not require external creativeness, will in most cases ever give. Plenty of instances, it has been already said, can be quoted to show that judicious manual training will call to life powers otherwise dormant: after careful training in this direction children have been known to return to school

work with a new and real zest and effect, so that they have been able to hold their own with others with whom they could not compete before. Manual work takes off the sense of hollowness and unreality which many children experience when dealing with pure thought: they see how knowledge gained in other directions can be turned to practical use: they have before them always a visible outcome of the real value of abstract knowledge: they grasp, as it is impossible for most children to grasp otherwise, the fact that even the most mechanic arts are based in the long run upon sound abstract thought. Moreover the boy who is slow at his books is often gifted and quick with his hands: the encouragement derived from feeling that he can do something well, will vivify all that he attempts. Of the great social value of realizing the difficulty and inherent dignity of manual labour itself, this is not the place to speak.

It has been said to be the indefeasible right of every boy to be brought up on a farm. Whether such a statement be true or not, it is certainly the right, the indefeasible right, of every child to have the opportunity of developing all his powers in an orderly way. The natural instinct of the young, especially boys, leads them in the direction of personal activity—a direction which our current systems of education seem to make it their aim effectually to bar. Not nearly enough opening is given in our schools for the true play of personal activity. Partly this arises from historic causes—the need in the progress of civilization for reason, our highest gift, to assert its due predominance: partly from the difficulty of organizing active work as effectually as can be organized the pursuit of abstract thought. But primarily education should be practical in its aim —learning to do, not merely to think: or to avoid misconception it might be better to say—learning to do in order to think, and then learning to think in order to do. The superabounding energy of children clearly points to some such treatment. Abstract study should arise out of physical activity and may run side by side with it in moderation: as with the advance of years

the excess of energy slackens, while the power of intellectual activity grows and thought becomes more and more abstract, the practical pursuits may fall into the background: the intellect will have received not harm, but gain. With girls there is more difficulty in the problem than with boys: needlework and cookery only partly attain the end: there seems no good reason why they, like their brothers, should not be trained to real manual labour, those branches being chosen which suit their powers. But whatever the difficulties in the way may be, it may be affirmed with certainty that the next great advance in the education of both sexes, must lie in the direction of personal activity—co-ordinating practice and abstract thought, helping to produce a complete man or woman.

CHAPTER VII.

SCIENCE.

MANUAL work is bound on the one side to drawing, on the other to the pursuit of physical science. It requires, to be good, great exactness of measurement, and accurate measurement has been said to be science. Certainly when, in the second stage, we take up the elements of physical science, we shall begin by teaching the use of the ruler, both for our own inconvenient system, and for the simpler metric style. It is easy to interest quite young children in the process of accurate measurement: by the aid of ruled paper they soon learn to understand how to construct and read a plan. They can draw the plan of a table or desk, of a passage, of a room, and so be led on by gradual steps to plot out the building in which they work, their playground and their surroundings—the plan of the town or the village where they live. They can be shown how to ascertain the length of circumference of a circle, to calculate the contents of a regular solid, even of a cone or of a baulk of timber. And when they have grasped the metric system fully—a point they will be attacking in arithmetic also,—they will have learnt a lesson in symmetry and logic which throughout their lives will be of value. Weighing will dog the heels of measuring—weighing in air, weighing in water: weights can be compared with measurements, and we are already at the beginning of physics. To obtain accuracy in these points will take a long time, and accuracy

must be an early aim. Hence we do not grudge the time spent: the expenditure will yield a rich return hereafter. Measurement will lead naturally to the consideration of heat, the expansion which bodies when heated undergo, and we find ourselves now in the domain of physics proper. Observation all this time is being carefully trained, and a mass of thought material being provided for the child, which will grow silently in his mind: he is acquiring knowledge which will enable him in after years to follow at least with some intelligence any subsequent developments of physical science.

The changes of matter in other points than size it may be well to defer till towards the end of this stage. Chemistry, that is, will hardly come yet. Its phenomena are more complex than those we have been considering: it requires more judgment and delicacy of perception. But we are learning meantime some principles of matter which are as important to the chemist as to the student of physics. When the time comes for embarking on chemistry proper, even though no more than the elements be gained, we shall, if we build on a fitting foundation, give not merely knowledge useful and interesting in itself, but an indispensable training in observational method: we shall teach logical inference, and the relation of cause and effect: above all we shall awake the power of separating causes, distinguishing by methods of agreement and difference, and the other forms of inductive procedure. Here we are in the province of logic applied to practice: one who has been trained in such rigid induction is not likely to be misled by overlooking differences of cause, or by the seductions of false analogy. But we must remember that our main aim is not to give knowledge, but rather to give the power of using it: to train the mind to deal with the presentations of sense, to separate the false from the true. The old system of teaching chemistry by qualitative analysis must yield to the more recent and more rational method —quantitative analysis in alliance with physics: we must lead the children to observe for themselves, and not merely give them

problems to solve in obedience to certain hard and fast rules. But what is to be said of the so-called heuristic method? Its basic principle is that we should follow in teaching the order of historical discovery in the science—a kind of Herbartian principle,—and that every fact must be discovered by the child himself: is such a method really possible in the short time at our disposal? If interpreted rigidly, it presupposes that the child is to gain nothing from past experience: our pupils are to make the same futile efforts, the same mistakes as their great predecessors: we are to save them nothing, to show them no smooth path, but leading them to the foot of the mighty mountain, only hold out a helping hand when they have stumbled over rock and scrub, lost themselves in quagmires or tumbled down a precipice. So understood the principle grows absurd: as well turn them loose into a laboratory with only those instruments at their disposal which Cavendish or Lavoisier had of old. And yet the principle, though it may be overdriven, is based upon a sound educational theory—never to tell anything which the child can find out. Thus understood we may regard the heuristic method as the last word of theory upon education: but then it is no principle confined to science: it applies, and by those who knew their work has long been applied to all subjects of education: if teachers of science have only just awakened to the need of its application to their special subject, it is clear that science must have suffered in the past: perhaps indeed it may be owing to the fact that those who came to drink of her invigorating waters were presented instead with long-mumbled bones of dry historic details or uncorrelated facts, that science has of late had so hard a battle to fight for her proper position in a sound curriculum, and that the humanities have turned such a deaf ear in the past to her claim to be more than the Cinderella of human knowledge. But we may hope that the fight between the humanities and science is based upon misconception and ignorance on either side: those who have been trained in both schools alike can recognize without difficulty how far the

exclusive claims of either are exaggerated, and how far each can justly claim to be a true part of the foundation of really rational education. The open eye, the active hand, the mind that can deal with a practical emergency, the power to argue from rigid facts—these are the gifts of science: the humanities teach us to know our fellow beings, from outward symbols to read inner thoughts, to steer a path in the hurrying crowd without too rough a jostling, to know the thoughts and feelings of others, to bind ourselves to harmony with the great human race: they train us in the art of approximate inference from data vaguely defined—the sphere in which most of our independent activity will find its employment through the rest of our lives. After all physical science is working at knowledge under conditions that are not natural: most of it depends, not upon observation of chance phenomena occurring uncontrolled, but on experiments artificially arranged—worked under any but normal conditions: and valuable as the training thus given may be, valuable as may be the knowledge thus acquired, it cannot give science the right to arrogate to itself so large a portion of the educator's time that the humaner pursuits die from sheer inanition. If it be remembered that in scientific training as a general training for every mind, the chief point is not the amount of knowledge amassed —knowledge often too vast to be carried in the head, knowledge which if wanted for any purpose later can always be found in the due referential books,—but the system adopted, and sound training in method and logical exactness, then it will be seen that with this aim in view so much science is not needed as is required for the boy who is to make science his chief pursuit in after life, but only that amount which is indispensable really to impress him with scientific method—to fling open the doors of the great temple of nature and exhibit the plan of the building, so that later he shall be able, if he wishes, to locate himself in any of the corridors or aisles, and follow with understanding the purport and aim of the great service conducted within. School is a time of beginnings, and it should be our aim to begin as

much as we can: a sound beginning does not mean a smattering: it is the opening up of new vistas of life. We may see a thousand pathways, though we can only follow one: to track each a little way to note its main features is in the long run no loss: for many of us at all events there is plenty of time: we are learning the topography of the fair kingdom of knowledge, with glimpses of beauty in scenes we may not revisit: but if in after life either fancy or need compels us to revisit these early scenes, we shall then be able to guide ourselves aright, and in any case have stored in the depths of our mind ideas of such variety and unfailing beauty, that our lives will be the richer for them all our days. "Non multum, sed multa" for education at large; the *multum* should be kept till specializing days, and the longer those days can be deferred, the better for the individual and the society in which he moves. For *multa* does not mean, as so often assumed, a faulty education or imperfect knowledge: knowledge may be perfect as far as it goes, even though that be but a very little way: and from the point of view of training, which is the important thing in education, the pursuit of a science or of a language to a great depth, adds nothing to the actual training to be won from it. The method is the same throughout: the gain comes in the greater richness of knowledge. But knowledge is not an end in itself: it is conditioned by surroundings: if not applied to practical ends, by which is meant everything that enlarges the world's life, it becomes mere self-indulgence—the most dangerous form of luxury because the most subtle.

Science then is as necessary as letters to perfect training —as necessary, but not more so. To each its place: some minds require more the discipline of science, some more the discipline of letters: all minds require both to some extent, and we should see that they receive it. The discipline of letters comes rather later than the earlier parts of the discipline of science, for these two reasons if not for more: first, because in science we are dealing with a subject which to begin with

handles the concrete and is approximately exact, and so we can teach processes where logical certainty rules the connexion between data and conclusions: secondly because in all dealings with our fellow-men we are gaining something of the training given us by the humanities, and hence need not be afraid of postponing the more complex study till a rather later period than the time for starting science. Still we must not withhold the food for which the young mind craves: for every child after all feels a keener interest in human acts than in the works of nature, at least as examined in the laboratory: the proper study of mankind is man, a maxim endorsed by the eagerness shown by children—and not children alone—for tales, which feature we have recognized in the first part of our curriculum, where great emphasis was laid upon this appeal to the imagination. For imagination really is at the basis of our appreciation of the varied doings of our fellow-men.

During this second stage we shall continue to develop the nature studies begun in the first, but if the ground-work has been laid soundly, much may be left to the children themselves. Observation once aroused does not easily die. Hence we shall be able to give most of our science hours to the pursuit of the experimental branches, the elements of chemistry and physics, to which we should add in broad outline the general principles of geology. To this we are led by a natural transition by the attention given to crystals in the study of form: it is easy to pass from their mere existence to the consideration of the interesting question of their source. And indeed we are leading, if we work in the right way, by the observation of nature in so simple a matter as that of the effects of a shower of rain, to the scientific study of real geography, which we shall base not on a dead statement of certain physical features, as if they had always been the same and were immutable, but on the watching of natural changes and the study of the material in which those changes are effected. The elements of mineralogy —not necessarily the classification—will spring spontaneously

from the study of crystals: with mineralogy will come fossils. Here we appeal again to the instinct of collecting, so strong a motive in the young: we also connect, though in a different direction, with life-study started in botany and zoology. Not that we need go far in this new science: the main principles are easy to grasp: and when they have been reached by observation and induction, we shall have laid a foundation which, considering the unending opportunities for building on it which every walk we take presents, even the most inert mind will not be likely wholly to neglect.

It is a strange proceeding of schools and examiners to associate geography with English work. Geography is not a literary subject: it is a branch of science, to be taught by those who are scientifically trained. It is true that in its later, political developments it touches closely upon history: but the elements should be learnt, as with any other science, by personal observation and induction, the only means by which we can hope for the child to secure a close scientific grasp of the facts and principles involved in this earth-knowledge. The Germans have long since shown us, in what they call Heimatkunde, how best to approach the subject: start from the home and work outwards: do not, as is so often done, begin with the conception of the world as a whole and then work down to details, which are mostly treated as isolated facts in marked inorganic disconnection from each other. Again the simple rule applies—from the known to the unknown, from the simple to the complex. We have already suggested a method of work which leads up to strict geographical training, when we set the children to work on drawing plans—their room, their home, their school, their playground, village or town. This process has not merely the advantage of impressing on them the sense of the spatial relations of the world in which they immediately move, but it teaches them also that geography is a science, that it has to do with exact measurements, with relations capable of accurate definition. Clay-modelling, which

is part of early artistic training, and its congener, building in sand, can be pressed into service here also : these processes add dexterity to the fingers and life to the mind. Here too we can work in the elements of geology—the effect of rain, the wearing of the rocks, the formation of new ground. For the children confined to big towns, with never a sight of a pure hill or stream, we may from small irregularities of surface be able to build up inductively a conception which, if it does not quite realize, will yet approach a genuine idea of the physical features which are really the basis of geographical study. It is clear that our principles require us to start with physical geography, not political, still less with the branch—more difficult of comprehension—which is based on remote astronomical facts. Map-drawing springs from the drawing of plans, and thus we make sure that its most important feature is not, as so often, overlooked—that of drawing to a given scale. Geometrical drawing will have shown the meaning of a scale, and by the use of squared paper in the early steps the greater difficulties can be turned.

We have had many an illustration, even thus far, of the aid afforded by the principle associated with Herbart's name—the principle of apperception, the theory of the circle of thought. Put simply these terms mean the correlation of knowledge, the fitting new thoughts into whatever whole has been formed by thought previously amassed. By carefully bearing in mind the value of association we shall do much to simplify our work : we shall save both time and trouble, and secure that owing to the many feelers put out by the knowledge already gained, any new piece will be firmly held—accepted at once as a portion of a whole. Thus put there is nothing very recondite in the theory, though unhappily there is manifested in dealing with Herbart the tendency which is so common when a valuable principle is announced—the tendency to regard it as a sort of talisman, capable of opening all locks. A good theory after all is but the enunciation of certain principles which underlie the facts of

nature reduced to their simplest expression: it is useful as a guide for criticizing the old and pointing the way to the new, but it is not to be regarded as a sacred charm which, never itself to be disputed, must be worshipped and followed at all costs. Education is far too complex for any formula to explain it, however embracing. Every principle enunciated must be content to stand criticism: it must be used in the light of common sense, and must not be elevated to the position of a god, to dispute whose divinity involves the guilt of impiety. Guidance we can gain from every good principle, but not security of procedure under all circumstances, complex as they are: questions of aim have to be considered, questions of temperament both in teacher and in pupil, questions even of limitation of time: high above all such restrictions shines the bright sun of theory, giving us light and illuminating everything: but the light itself is complex, clouds may cut off part, or fogs remove it altogether: such obstacles of nature we cannot always avoid, and have then to walk in darkness with groping hands, finding our road as best we may. Nor need we wrap our theories in a mass of mystic language which only tends to darken counsel: simplicity—the great thing in education—is the great thing also in the principles we take for guides.

CHAPTER VIII.

THE HUMANITIES.

THE scientific side of geographical study will in time give place, but only by degrees, to that side which touches upon the history of man, and so lead us away from the external, artistic, practical and scientific studies whose development in this second stage we have so far been engaged in tracing, to the more complex and indispensable pursuit of those studies we may class under the name of the humanities. The foundation for this work has been laid in the first stage, partly by the pursuit of natural history, which requires some imagination to be of real interest, partly by stories told, whether invented or biographical, partly by early lessons in poetry and song. These are capable of easy development, biography leading to history, poetry to literature, both to the cultivation of the imaginative powers. Children are intensely interested in learning of past events, provided they are put before them in a suitably simple form: we need have no fear of overshooting the mark by turning their attention early to history. But a difficult question arises here: shall we begin with the first periods of history—our own, or that of the world at large—or shall we start, as some have urged, with the soldier and the policeman, that is, with the child's personal experience, and so gradually work back? The latter method seems to base itself on the principle of known to unknown: the former seems more

logical—causes and effects in an orderly gradation. In answering the question the first point to remember is that in history we are dealing with the most complex of all studies, and that we cannot at school with reasonable hope of success do more than, as it were, open the book, and point out method and aim—break ground sufficiently to drop in seeds for after growth. And what are the seeds we shall want to drop—the aim we want to make clear? It is not the amassing of facts, the knowledge that at one time one king was reigning, another at another: it is the motives that guide to human action, and the limitations of human powers by natural obstacles. Now human nature as of old is human nature still: a child can enter as easily into the motives which guided Alfred as he can into the motives that guide the people he knows. Ambition and jealousy, desire to do good, love of one's country, lust for power, self-sacrifice and martyrdom, hatred and love—these and the countless other motives whose play is depicted to us in history, are not bounded by one century or one time of life, but find their counterpart in every stage of civilization, in every year almost of life, sufficiently clearly for even the child of comparatively tender age to understand them without much difficulty and to follow them with interest. Human nature is one all the world over, different as its manifestations may at first glance seem to be. But those differences are for the most part differences of setting, not of essential quality: hence we shall not consider that we are outstepping the bounds of the rule about the known, even if we start with men long since dead. Their actions will come home to the young child with far more interest than if we try to explain to him who pays the policeman, what in detail are the duties of a soldier, why it is necessary to maintain a standing army. Biography is the very sap of history, bathing the whole plant in a flood of human interest. Picturesqueness too must not be forgotten—the vivid appeal to a vivid imagination. We shall begin then with biography and stir the child's emotions:

we shall teach him to reason out why among various lines of action our hero adopted one and what were its effects. Thus we shall be giving the elements of that training in judging the motives of other men, which will continue to be practised throughout the rest of his life. Doubtless we shall choose for the early stages those lives which have round them a halo of heroism sure to appeal to the heart of the child: we shall put on one side mere political workers, the greatness of whose work will not be well understood: we shall teach him by examples which he can easily comprehend to trace both the causes and the outcome of action—enable him to assimilate, albeit unconsciously, the vast profit to be gained from a study of history scientifically pursued. Unimportant features such as dates we shall for the present largely disregard: we must choose our own details and at first only those which will add to the broad effects of the picture we wish to draw. The time sense in young children is almost wholly lacking: nor is it in biographies an important feature. The child will realize a thousand years as easily as he will realize ten—that is to say, he will realize neither: we ourselves are only better than he in so far as we are able to fill up the years named with a mass of detail, giving actual shape and content. We may realize something of the meaning of the millennium which has passed since the death of Alfred the Great, because we know something of what has happened in the interval: how many of us realize in any tangible shape what is meant by the several thousands of years which have passed since the times of the great Empires of the East, or of the still longer period since Palaeolithic man? Even if we take unconnected biographies from very different periods for our early lessons in history, no harm is done: the intervals are blanks which will be filled up in time, and if we teach aright we need at least fear no confusion. The sense of time is one which we must eventually give in however imperfect a form: something may be done by the showing of a sheet where different ages are represented by

a table drawn to scale, more or less after the style of a geological map depicting the succession of the different strata. But everything cannot be done at once: broad effects should be our first aim, and the imprinting of the fact that human nature is one, and that lessons may be learnt from the remotest past of inestimable value for our every-day life.

As the children grow in years, they will be able more and more to grasp the idea of the continuity of history. We shall still if we are wise, cling to broad outlines, sacrificing detail of the history of our own country to securing some knowledge of the history of Europe and of civilization as a whole. But this ground will take some years to cover, and may indeed not be adequately traversed till we commence or are well advanced in the third stage of education. Throughout our aim must be to teach appraisement of motive, to point out difficulties and how they were overcome: great stimulus may be given to independent thought, if we put each difficulty to the children as a problem of their own and ask them how they would have attempted to solve it. No subject can rival history in teaching cause and effect as they present themselves to us in our daily life. There is first the disentanglement of the essential from the unessential, then the vivid realization of the surroundings of the man: next we have to value his personal equation, and then, by working out our own solution, see how far we have grasped correctly the man and his world. The interest is intense and the value incalculable.

Concurrently with this more developed study of history will go the pursuit of political geography. Just as history has been spoilt by too great attention to detail—a tendency fostered by examinations till it has become a perfect nightmare—so has geography suffered, and even to a greater extent, by the idea that it is important to amass a vast quantity of detail, dull in itself and of no practical value for the training of the mind or usefulness in life. It is perhaps this feeling that has led to the attitude—characteristically British—of treating geography

as a haphazard subject—of trusting to travel to give us knowledge later, as M. Max Leclerc says that the Head of a great school put it, "en parcourant le monde." For once we have blundered upon an educational truth—and yet it is a blunder and only half a truth: for even political geography can be treated scientifically, so as to be when properly handled of solid and lasting value. It may be doubted if any Englishman ever properly learnt geography through merely "parcourant le monde": even if he learnt the political side adequately, the scientific basis of it would have remained hidden: science cannot be picked up haphazard.

Geographical history or historical geography is one of the best means for teaching induction and deduction, and realising the importance of a multiplicity of causes in counteraction or cooperation. The limitation of conditions under which man can act, the dependence of great results on seemingly minute causes, the necessity of grasping all the elements of a problem, to say nothing of the various moral lessons taught by history—all these are valuable for conduct at large, a training to action in the most practical way. Science and the humanities here go hand in hand, if the subject is viewed aright: we see how the one assists the other, how each is defective in isolation. History can be the centre of "the circle of thought" for the period which is being studied at any given time: that is, we shall take care to correlate all that we are doing, so that each subject may have many tendrils by which to cling to others for mutual support. Especially can literature and history thus aid each other: we shall learn in poetry and read in prose—yes, and perhaps learn by heart there too—the finest that bears on the times or the men the records about whom we are engaged in studying. For now we approach the time when the mind takes a life bent: in the plastic years of the second stage, from about seven, that is, to fourteen, we may so imbue the taste with the sense of the great in literature that nothing will be able to warp it

hereafter. It is true that such training is rather aesthetic and moral than training of the intellect and therefore bears but slightly upon our immediate subject: but the intellect is influenced by the emotions and morality, and the point is far too important to be wholly passed by. We may indeed gain intellectual profit from analysing the contents of the works we are reading and considering how the author reaches his effects: but we must be careful in so doing that we do not kill the life, that while we dissect, the spirit does not evaporate and leave but a dead anatomy behind. We shall have to see that our pupils grasp the thought of the writer, grasp it clearly and in full, one of the best means of ascertaining which is the regular practice of sound paraphrase. It is idle to urge against such a pursuit that the author has already expressed his thought in the most effective language to be found, and that to ask the growing mind to discover better expression is to expect in spring the rich fruits of autumn: such an argument is beside the point: our aim is not to improve on our author, merely to see that he is understood. Paraphrasing is a lesson in the understanding of language, in the power of grasping a subtle train of thought. We aim at clearness and simplicity of expression, than which in the whole of language instruction there are few points of greater importance. Lucidity of expression means lucidity of thought: of such lucidity we can only be sure after careful practice in the habit of writing. Paraphrasing provides such practice: it has the advantage of a subject matter given, so that a boy is not gravelled, as so often is the case with original composition, from sheer lack of ideas. Paraphrasing is really a kind of translation—translation of one mind into terms of another. That the latter is inferior does not matter: the very difficulty of translating trains to appreciation. By the practice we are enlarging the vocabulary of the pupil, and enlargement of vocabulary means enlargement of ideas. We are giving flexibility, at least of expression—itself a sign of a flexible mind. Hence to composition we

shall pay very great attention in one or all of its many forms, whether it be paraphrase or whether it be digest, translation from foreign languages or original work. And moreover we shall practise, if really wise, the reproduction *viva voce* from the earliest days of stories, and later of more difficult matter: thus we train alike the voice and expression, show the difference of style between orations and writing, and teach control and rapidity of thought. Readiness of resource is worth some cultivation. Moreover this *viva voce* work prepares for the conversation which is so indispensable in the proper learning of foreign tongues, and conquers the shyness which, if a national characteristic, is certainly fostered most unduly by our present methods of education.

Abundant practice in English composition and command of a large vocabulary should always precede any attempt to teach a foreign language to a child. Much time is lost by beginning other tongues before we have an adequate mastery of our own. A great part of our difficulty in learning a new language is not due to the difficulty of the subject in itself, but to the limitation, the poverty of our ideas, to our ignorance of the language we have been speaking all our days. And inasmuch as when we come to the teaching of other languages part of the instruction is bound to be analytical, we shall find it necessary to have learnt the elements of grammar—universal grammar, that is, illustrated by our own particular idiom. The universal nature of the groundwork of grammar is often not sufficiently realized: too much attention, especially at first, is concentrated on the overwhelming peculiarities which mark the warp of the language we may be studying. If we base ourselves to begin with on that which is universal, we shall place in the children's hands a weapon which will be invaluable when later they are starting a new language: for they will then without difficulty be able to realise that they are expressing the thoughts they have known of old, only with the use of new symbols.

It is strange that so large an outcry is often made against grammar. It is the side of language study which approaches most nearly to the methods of physical science, and yet the supreme advocate of the educational importance of the knowledge of physical science is himself the man who most decries grammar—Mr Herbert Spencer. True that in one aspect it is a formal study, but it is a formal study of vast importance in strengthening the abstract powers of the mind. It trains observation and thoughtful analysis: it leads on gradually to logic. It shows us the possibility of clothing one thought in different robes: it gives richness of expression, flexibility, variety. No doubt the antipathy that has often been felt to it has largely arisen from wrong method—that fruitful mother of countless ills. We shall not trouble ourselves with lists of irregularities—strange masculines and feminines, odd plurals and comparisons: we shall not spend time in learning by heart paradigms of verbs that are picked up quite correctly. This at least not at first: such a process belongs to an age when the children can classify their knowledge into groups for themselves and find the groups of use in learning another language. We shall begin with distinctions of the simple parts of speech, coupled from the first with systematic analysis. Those who have tried it know that little boys, even as early as eight or nine, are quite capable of grasping such grammar as this, and pursue the study with zest. Parsing and analysis, if taken concurrently, the parsing arising from and fitting into the analysis, so that the children have something to do and are not merely learning dry lists by heart, are not only profitable but also interesting: the children secure a valuable training in the art of seeing beneath the surface, and learn to break up a complex material to find the elements of which it is made. And this work is really indispensable if we are not to waste time when we go on to foreign tongues. It has been said that if boys know their English grammar, their Latin prose will advance by leaps and bounds: it is a strange survival of

monkish traditions that any one can maintain in full seriousness that English cannot give us grammar because it has been stripped of most terminations. Its very advantage is counted a fault. The less complex the material, the easier to teach root-principles: and it is only the root-principles that are wanted at first. The knowledge of analysis is of inestimable value in correcting faults in composition: when we can reduce them under a known system, the children are not so likely to make the mistake again. And how many of the mistakes of beginners in composition are due to a disregard of simple logic!

Grammar in itself is not a mental food: it is a whetstone for the tools which the mind has to use. But a sharpening of tools in this connection is the sharpening of the wits which are to use those tools: not all training is confined to giving thought-material, at least in the broader sense. We must not suppose that because it takes time to sharpen our tools, the time is lost. The training, though different from that supplied by thought-giving subjects, is equally valuable: we train especially the power of abstract thought, on which in the long run the world's advance depends. We shall indeed find it less easy to co-ordinate a formal study like grammar with the rest of our teaching: but the material can be drawn from the authors under study or from the compositions of the children themselves. But we have to avoid a rock which has wrecked many in the past: we must beware of killing interest in formative literature by using it simply as a peg on which to hang a more bloodless subject. When the children are keen on taking food it is no good to offer them exercise. Such treatment is analogous to the Queen's treatment of Alice, when the child remarked: "I am so hot and thirsty!" '"I know what you'd like," the Queen said good-naturedly..."Have a biscuit?" Alice thought it would not be civil to say "No," though it was not at all what she wanted. So she took it and ate it as well as she could: and it was *very* dry: and she thought she had never been so nearly choked in all her life.' When

studying literature we must study it as literature, and not offer the children when thirsting for soul-drinks, the dry remainder biscuit of formal thought.

English grammar will be connected both with composition and with history, and the children will be interested in noting how history has affected the vocabulary and construction of their language. But it will be well to avoid philology strictly so called, certainly during the second stage of education: even in the third it should perhaps be introduced only in a very guarded way after a fair grasp of other languages has been gained. If taught to read by a rational method, the children will already have broken ground in phonetics, philology's essential base: but the knowledge thus gained need not be worked up into the larger subject till much later on. Its freshness will be maintained by the learning of modern languages, the pronunciation of which it will greatly simplify. Hence it will not be dead even in later stages: and if we take opportunity from time to time to draw attention to the history of an interesting word, we shall be laying a foundation, unknown to the children, important for later systematic study. This is a chief principle throughout education—to have a plan so clearly sketched that we shall be able to drop hints from time to time bearing on future studies, even though we may have to wait long before those subjects are handled in detail. Such hints may seem lost, but they are no more really lost than the seed put into the ground: they stir the interest of curiosity and fructify in the hidden soil of our minds below the region of consciousness. Hence when we treat the new subject scientifically, we already have material on which to go—far more in many cases than we actually realise. The mind has become habituated to the new order of thought and welcomes it as an old friend. A teacher should always be alive to the opportunity of thus preparing his way indirectly: it adds interest at the moment, and renders easier subsequent advance.

CHAPTER IX.

FOREIGN LANGUAGES.

From the study of English we naturally pass to the study of other tongues. But of two things we must be certain before taking such a step—first, that the children thoroughly understand the meaning of the words in their own language which they are now to represent in another way: secondly, that they have grasped universal grammar in outline, so that when they have to refer in their new pursuit to grammar they may not find a stumbling-block in ignorance of terminology. Nor shall we make the new plunge without adequate preparation: we shall see that it follows on the study of history, and first awaken interest in the life of the nation whose speech the children are about to learn—perhaps even give them a brief sketch of the causes which have helped to separate tongues. To discuss the possibility of a universal speech would bring home to them the difficulties that lie in the way: they would see that there is a reason for difference of language, and the knowledge might do something to kill the absurd contempt which the British schoolboy, of the past at least, was wont to feel and even to show for those whose language is not his own.

Two questions arise about the study of foreign languages: first, At what age should we begin it? secondly, What language should be taken first?

To lay down a hard and fast age rule for the commencement

of any branch of study is, it is manifest, an impossibility. The mental powers of children vary so much, their stock of knowledge and outlook are so different, that a strict definition is out of reach. Yet if we have regard to the average child, a reference to age is not without its value. It is true the average differs in different classes of society, and this introduces a further obstacle: still the reference to age is a real convenience, if not interpreted too strictly, and especially if coupled with a reference to the ground already covered in other subjects. Roughly speaking it is probably not wise to begin a foreign tongue before the age of ten, by formal study that is: the question of bilingualism gained in the nursery stands on a different footing. Children can be taught another tongue beside their own in a mechanical way from the very earliest years: even two foreign tongues have been so learnt where not merely the nurse or nursery governess, but the parents as well, could do their part: the children experience no difficulty, and never confuse the distinct languages. Is the result worth the effort? It may be true that children thus trained do not necessarily show more capacity than others—more general capacity of mind, that is: but they have acquired a mental flexibility—one of the chief ends of learning other languages at all—which will stand them in good stead throughout their lives. Of the practical value of such knowledge this is not the place to speak: it scarcely comes within the province of a treatise on intellectual education. Still we must not be entirely oblivious of the fact that the earlier we can start on a useful course, the better it will be for the child, provided we do not transgress nature's laws. And there is certainly nothing in the nature of the child to prevent him learning two or three languages at once, if they are not given as formal lessons, but simply picked up—breathed in as it were from the daily atmosphere around him.

Such conditions however are clearly exceptional, and from exceptions no law results. We must argue on the supposition

that the child comes to school knowing nothing of any other tongue than his own. We have then two points from which to start—a knowledge of his own tongue, made good and sound, so far as it reaches, by earlier school instruction, and a knowledge from history of the existence of other people, speaking in a way he would not understand. Which of the many languages so spoken is it advisable to take first?

If we start from the concrete pursuit of education as we see it around us at the present day, and limit ourselves to the education of the people whose native tongue is English in these islands, there are four languages, and four only, which can be taken seriously into consideration—two ancient, Latin and Greek, two modern, French and German. How are we to decide between their claims? We must base ourselves for security upon a fundamental principle—procedure once more from known to unknown, from simple to complex. Known are two things—the English language and the English ways: which of the four languages presents the easiest transition from this knowledge to an unknown world? As regards ways there can be no doubt that the modern languages possess a decided superiority over the ancient: the French and the Germans are much nearer to us in their attitude of life and outlook on the world than either the Romans or even the Greeks. And of the languages themselves? Can it equally be said that French and German are nearer to us than Latin and Greek? Now here two points have to be considered: first, vocabulary, secondly, idiom and grammatical structure. English, it so happens, has such a complex origin that as regards vocabulary three at least of the languages may claim almost equal weight: Greek alone is excluded. What then of idiom and grammatical structure? This is a far more difficult question. As regards idiom, Greek is nearer to us in many ways than Latin: it is so flexible and varied that it would be strange if its methods did not often approach our own. Yet neither Latin nor Greek as regards idiom can be said to come

near to the two modern tongues. Even granting all the differences, especially in advanced stages, between French and German on the one hand and our own tongue on the other, the closer originative association of these three languages and the electrical communication of ideas and ways of thought which goes on in the present world, have led to a general similarity of structure which must smooth the path of the young student. We discuss the same subjects and regard them largely from the same standpoint: to get the right perspective for the ancient languages requires an adjustment of focus so radical as to be extremely difficult for an average child when he has also to struggle with a new vocabulary and a deeply complicated grammatical structure. For even apart from idiom, this last point is of importance. It is sometimes maintained in favour of Latin that the very complication, combined with its regularity of accidence and syntax, gives it a claim that must be paramount to the first place in language training. If this argument is pressed, we may as well adopt the most complicated language that can be found—Russian, perhaps, or at all events Greek—to secure what is considered such inestimable gain. But as a fact the argument is a mistake. It has already been shown that English will give such training in grammar as is good for all—the logical side of language: to pick out the cases with accuracy in English evokes far more effort and far more thought than in a highly inflectional language like Latin, where a signal is hoisted at every turn which leaves but small chance of going wrong. It is true that translation into Latin is another matter, but there the young child is apt to be overwhelmed. To regard, as some have done, the learning of the first declension as of inestimable value in itself—what is this but to talk sheer nonsense? It is no more valuable than other memory work—nay, not so valuable as much, for it may lead us nowhere. We must advance from the simple to the more complex by gradual stages, not by a wild leap into a chaos of confusing knowledge: from English through French

or German to the classics, not from English to the classics and then to the simpler structure of the modern tongues. If this progress is established on theoretical grounds as good, from the practical side also it has the advantage of giving us knowledge we are less likely to let die, though external utility is not a point which our present discussion would allow us to emphasise. Setting that aside then, we may yet say that on every purely educational ground, whether affinity of outlook, or parallel idiom, or simpler grammatical structure, modern languages win the day: that to start a young child on a language like Latin is a grave mistake—waste of time and discouragement of effort.

It is difficult to believe that if we were starting the whole scheme of education afresh, any one would suggest that in language teaching Latin should be chosen to form the staple. In the dark origins of our educational system, that result was natural enough. There were but two civilised tongues, that of the Romans and that of the Greeks: the latter was almost entirely unknown to the cloistered scholars of the middle ages. It was right and proper for them to use the materials which they had to hand: it does not follow it is right for us, any more than it would be right if we based our study of natural science on Aristotle or Galen. We, in succession to our fathers, live as the heirs of all past time: we shall not scruple to close old rooms in the gorgeous palaces we have inherited or, if need be, to build new, in order to live with more advantage—to meet more modern needs and aims. It will at least contribute more to health.

There is indeed one reason, not without weight, for starting Latin in quite early days with those who have to learn it at all. It is said that we cannot, owing to its difficulty, thoroughly imbibe it unless we start quite young: years are required, and unless these years are given, our Latin will never be well up to mark. Now this argument, it may be at once admitted, is not without some truth, and yet two answers may

be made. First, the argument itself admits that Latin is a language of exceptional difficulty—conceding the point that it is not really the fittest mental pabulum for a child of, say, ten: second, the same argument applies to any study—nothing can be fully grasped without time, without giving to the mind a chance of assimilating by those dark unconscious processes, which, though we know, we cannot explain, the various food presented to it, till at last it is absorbed into the very texture of our being. Latin is not in this respect peculiar: indeed when we consider the vast vocabulary of our modern tongues, their constant growth and ceaseless change, we may say that the latter require longer time than the former, which after all is a limited sphere. But indeed we can cut away the whole root from the objection by a rational procedure in the matter of the time-table. It is necessary in all subjects to create an atmosphere, to bathe the mind fully in the element we wish absorbed: we shall therefore whenever we break fresh ground take care for some time to give our new subject an exceptional amount of the hours at our disposal. The beginning is apt always to be the most difficult: we shall therefore strive to conquer it as quickly as possible, so that the student may not feel the weariness of working hard and yet seeing no result of his labours. We shall strive to push on so far that before the weariness is conscious, it may be overlaid and checked by the interest that lies beyond. For the time other subjects may go more slowly: no loss will accrue. Involving as they do so much more minute grammatical analysis than the tongues of to-day, the old languages much more easily create weariness and unreality, especially at an age when grammar is of little interest: we shall do well to postpone their study therefore till the mind itself has its powers more developed, till there is greater ability to look forward, more faith in the value of the future gain.

On all rational grounds then we may say that it is desirable to postpone the study of Latin till one foreign language

has been to some extent grasped: it now remains to consider which language should take precedence—French or German. "French," says tradition, partly no doubt on historical grounds: but before we make our choice it may be as well to consider fully in the light of our guiding principles the arguments in favour of either.

From one point of view, we may premise, it does not much matter which we choose. There are two chief intellectual aims in learning another language—one to develop flexibility of mind by broadening the sphere of knowledge: the other to add to later life-interests, if not also to practical ability. For the moment perhaps the latter point may be disregarded: it is not a purely intellectual consideration. For broadening power taken alone, there is very little to choose between French and German, or indeed between any foreign literary tongues. The gain is so great from learning one foreign language that the advantage derived from choosing one in especial is by comparison insignificant when regarded from this point of view alone. We gain a new standard by which to test our own tongue, sufficient to show its strength and weakness: the points missed through the selection of one language before another count relatively for almost nothing. Even the mental *volte face* required for Latin and Greek sinks to a trifle by the side of the change which the first introduction to a strange speech works in our general attitude of mind. Hence it is that we may say that from the point of view of flexibility it is a matter of indifference which we choose—French or German.

What points are there then in favour of one or the other as the first language to be taken up? Naturally we think in the early stage of the important point of pronunciation. Here it is obvious German has the advantage. Granted that both require very careful teaching, and granted too that by phonetics, first in teaching English as advocated above, and next in teaching whatever language we adopt, we may conquer the difficulties which loom so large at first, the fact remains that,

do what we will, French pronunciation is so alien from English—we have, it has been said, to reshape our mouths completely,—that it seems to be putting an avoidable stumbling-block in the way of young children of the age, perhaps, of ten to expect them to learn French pronunciation with the ease and interest with which they will learn German. The answer which is sometimes given to this argument that the pronunciation is so remote from our own that if we do not learn it when young, then we shall never learn it at all, is not properly speaking an answer, for the simple reason that it is not true. We are capable at almost any age of learning any pronunciation, if two conditions are fulfilled—first, that we make a serious effort, second, that our vocal organs have not rusted through long disuse in speaking foreign sounds. Atrophy may come over our powers, if they have not been used at all: but that condition should not hold in school life, nor probably for many later years. In the case indeed of one who has been thoroughly taught a foreign pronunciation at any time, it is improbable that atrophy will ever arise, until at least those fatal years when atrophy is beginning with all our powers. There are but three great difficulties in German pronunciation: to get the pure vowels, to pronounce the R, and lastly the guttural sounds: and for many English people, particularly those from the North, the two latter difficulties are practically non-existent. But what is the case with French? There we have to deal not merely with our own vowels reduced to purity, but with a completely new set of vowels altogether: we have the same difficulty in R as we met in German: we have the rising sentence intonation—to some people more difficult than any pronunciation of single sounds,—and above and beyond all we have a complexity of spelling which is only exceeded, if exceeded, by our own irrational system. There is no doubt in which direction the scale would incline if we had to consider pronunciation alone. We should decide, and decide wisely, in favour of German.

But pronunciation, though important from the point of view of proceeding by simple steps, confirming the feeble knees and discouraging faint hearts as little as possible, is not after all the most important matter, and cannot by itself decide the point. We have to consider more the difficulties to be faced in going deeper into the language. In vocabulary it is perhaps hard to decide between the two competitors. If advanced French shares largely the vocabulary of English, German on the other hand has an abundance of simple words which, if not the same as English, are so similar that no one can fail to see their resemblance. And if we aim at teaching the life of words at all—a study which when kept within proper bounds is fascinating even to the quite young and opens into history vistas of reality which formal history lessons rarely disclose—German is certainly far more suitable, if only from the fact that the words so often show regular divergence in the midst of similarity. The unfamiliar style of writing and printing may be a drawback, but need not be used at first: and even if the printing soon becomes inevitable, the difficulties it presents are not overwhelming. On vocabulary and writing it is difficult to decide: the question, so far as these points are concerned, may perhaps be left with safety open.

We have now to consider the language structure: for as pictures of life, of foreign ways and methods, both tongues are sufficiently alien from our own to administer a shock when first approached. Now what are the special difficulties which will trouble the young when they study respectively French and German? The general sentence structure of French is very similar to our own—a point of no little importance when we remember psychology dictates that all approach to a new language must lie through sentences, not through single words: and yet as at first we deal only with simple sentences, in accordance with so much of analysis as we have taught, and as in German the only substantial difficulty here is the position of the participle and infinitive, against which we may set the

adjective in French, it is possible to make too much of this at first sight great gain. Moreover, as will be shown presently, the teaching must not be translation, but direct, in which case the difficulties of order largely vanish, as the false arrangement will never have been suggested. On the whole then we may for the present disregard the point of construction of sentences: by the time that we come to complex sentences in German, the children will be older and have a wider reach of mind: and, not to repeat what has just been said of the gain from using the direct method, they will already have such a knowledge of complex sentences in English as will both be fortified by and fortify the signals held out by German to indicate clearly the nature of the thought. What at first then seemed likely to prove a great obstacle, the divergence from our English method of expression, has turned, when examined, into a gain—a gain easily within reach of the minds of children of the age contemplated.

There remains the accidence—a complicated question. The German verbs are simpler and far more like English: French on the other hand has no declensions, and the agreement of adjectives—strange in itself—is yet not so strange to us as the more elaborate forms of German. Will either difficulty be too great for these young minds to face with profit? Now verbs and nouns are the key-words of a sentence: if these are rightly understood, it is not hard in simple diction to reach the meaning of the whole. Which is then the more confusing—to fail to grasp the proper forms of nouns, or to fail to grasp the proper forms of verbs? Variation in case by nouns hampers or helps a beginner little in grasping the general drift of a passage: ignorance of the tense of a verb may be a matter of vital moment. And as we advance, the correct appreciation of the exact meaning conveyed by a sentence depends more on understanding the forms of the verbs than on any other single point. Genders are a difficulty alike in both languages, and in French there are besides not merely

the peculiar position of the pronouns, but—what is serious to beginners, especially when taught by the oral method—the strange forms assumed by even simple questions. On abstract grounds therefore it seems we shall decide in favour of German rather than of French as the first foreign language to be attacked: the only argument of weight to be adduced against that position is drawn from practical considerations, which do not come within our purview at present. And even practical arguments do not all favour French. More of the important new thought of the world, of the world, that is, dealing with matter and not man, is to be found in German than in French: and it becomes doubly important in the case of those whose schooling is so brief that they can lay no firm foundation in two languages beyond their own, to give them a key which will unlock the newest thought in those spheres in which their after lives will mainly move. If at school they do not gain it, they will rarely gain it afterwards: it seldom happens that once the school has closed behind him, a man begins an entirely fresh line of study, unless he is driven by sheer necessity. And this fact in itself is alone a crying argument for the need of considering most carefully the principles of our education and the subjects on which children are to be reared: what they do not secure at school, they will probably secure never: as is the child, so is the man: the greater part of our after life is spent in simply deepening the grooves already marked by our early years, or in the perfection of mechanical accuracy: it is rare to find a character change after sixteen. How great a burden then rests on our educators—little less than the whole course of the world's future history!

There is one point in favour of starting with German which it may be well to emphasise a little more at length—its extremely logical structure. The training in logical structure is one of the arguments commonly adduced for giving to Latin the palm for discipline. The nearest approach to it among

languages to be considered is made by German, and therefore, if there is a probability—and there is often more than a probability, there is in most cases an absolute certainty—that our boys and girls will never touch Latin, then all those who hold this view of Latin, if they find that language out of the question, should assent to German taking its place. The exactness which is required to construct a German sentence, the need for seeing beneath the surface, the claim upon thought and the application of rule—all in combination train to that orderliness which, as the opposite of hurry and haphazard correctness, is the very groundwork of true intellectual discipline. And the marked difference of German in structure from English makes the discipline all the more valuable: it affords material for minute comparison which cannot fail to help both flexibility and exactness. The same gain does not accrue from French, at least not so readily. French gives a training in neatness and grace of speech—lucidity certainly, where German is so lacking: but on the whole it may be regarded, and regarded fairly, as a subject rather to be ranked on the ornamental than on the disciplinary side of instruction. That is so, at least, when combined with other tongues: if French be the only one we are to study, we must pay more attention to it as a strict disciplinarian, less as a literary charmer.

If it be allowed then that we start German, say about the age of ten, we shall take care to give it a large share of time, in order that a real grasp may be won before the subject has lost its freshness. It presents many links with other subjects. From the formal side, as proved already, it gives life and point to the teaching of English analysis—drawing from it vitality and giving of its own life-blood in exchange. From the material side it opens up an interesting chapter in one of the obscurer branches of history—the history of words, with all that that means of careful comparison, and inference in a realm far removed from observation, thus showing incidentally

that scientific method is not limited to facts of external nature: it throws out tendrils of connection with our national history, leading to a consideration of the causes which have differentiated the modern Englishman so markedly from his cousin on the Continent: it presents to us a literature of great charm, especially of use in the early stages, sufficiently like our own in both thought and expression to appeal even to the quite young, yet sufficiently unlike to stimulate the sense of difference, and therefore heighten interest. And in the deeper stages the study of German thought is of incalculable value from its very complexity and subtlety. We may hope that the disadvantages of style will be counteracted by the training given in our own tongue: if French can be added to our stock, there at all events we shall have the corrective.

French should certainly follow next, if time can be found for a second language at all. But two years should elapse between the start on the first language and the passing to a second: the first language will then have had time to work efficiently, and the mind will be ripe for another advance. The second language can be taken at a more rapid pace, so that by thirteen or fourteen the ground will be clear for Latin, where it is thought desirable to learn Latin at all.

It has already been said that modern languages must be taught, to produce a full result, by the direct method. By this means, whichever style be adopted, the mind is put into immediate communication with the idea to be conveyed and the expression to be used, without the obstacle of translation. This method is the nearest approach to nature which it is possible for us to make, with a saving of time which blindly-working nature, who leaves the young infant to toil for himself among a vast complexity of sounds, is never able to effect. To set up nature as an infallible guide is to derogate from ourselves as rational beings—to throw away all the results of the work which nature has been doing through countless generations since the development of man's in-

tellectual powers began, whereby she would teach man to help himself not merely by slavishly copying the processes which she herself has been compelled to use, but by applying his full-grown powers to the discovery of other and shorter processes worked out by reflection in the light of her guidance. In dealing with the infant nature has chosen one particular, wide-straggling path, because all his mental powers are as yet but weak, and he has much more to learn than the use of a vocabulary: by the time that the child is of age to learn by conscious effort another language, much of that developing work is done: the child himself has reasoning powers, of which he partially knows the use: if nature unaided had to train a child already of some years to the use of speech, she would probably not adopt the method used from birth, but a method which would make some appeal to the sense of order, by correlating the subjects presented to the mind, and leading the child through a systematised vocabulary to an earlier attainment of his ultimate end. This is the essence of the oral method: it is a following of nature, coupled with the guidance of our own intelligence.

But the advantages of the oral method are not confined to the acquisition of another language in the most rapid and certain way possible: it also affords an admirable means of training to the art of expression—that art which is so needful in particular for English people. To begin with it emphasises the importance of securing clearness and accuracy in pronunciation—develops the work begun by good instruction in reading and—to use a large term—elocution. It also corrects that *mauvaise honte* which is so marked a drawback of the majority of our countrymen, conquering the inability to open our lips when we find ourselves in a strange situation, giving us confidence and proper self-respect. It will indeed always be carried on with an eye to the lessons in reading and elocution which form part of the teaching of our own language. We shall by degrees habituate the children to stand up and deliver in the language they are studying a connected state-

ment of what they have learnt: they will learn to think rapidly, and that in a foreign language—as rapidly as they can do in their own, giving vent to their thoughts at the same time. Such a training is invaluable: it gives readiness of speech, resource, flexibility, the habit of having all our knowledge at command —for the purposes of life some of the most valuable assets resulting from a rational system of education. What have Latin and Greek as usually taught to show in comparison?

But still higher qualities are called into play. By the use of translations and dictionaries, or the living dictionary—the teacher—to solve all the difficulties which present themselves to the beginner, we fail to teach self-reliance: we throw away voluntarily invaluable opportunities of using the powers of comparison and inference, the application of all existing knowledge—even that hidden away in the remote storechests of the mind—the intellectual habit of putting out feelers to correlate any new facts with old—advantages which are all secured by the oral method properly worked, but with others are largely, if not entirely, lost. We learn also quickly to put ourselves *au courant* with the idea rather than with the form of expression, to consider realities and not mere words. We obtain new material by an analytical process, followed by due synthesis later—a living, impressive process, far more vital than the mere memory work mostly implied in the established system. The mind feels that it is growing: interest is developed—compound interest rapidly accumulating. A sense of living reality, of tangibility is created, which is the best security for enabling the mind really to grasp what it is doing.

At a more advanced age no doubt it will not be desirable to confine ourselves entirely to the oral method and the method of induction. We must not drive a principle to death. The use of the dictionary and translation may become quite good and proper when once we have established a broad framework in which to fit the knowledge thus acquired, and when we are so soaked in the foreign attitude of mind and the foreign tongue that we naturally think in it and no longer

approach it indirectly. Especially may translation, even in early stages, be allowed, in dealing with the names of concrete things which it is too elaborate to describe—names, for instance, of special birds and animals—and of which we may be unable to secure a picture or a specimen. An occasional digression under such conditions to obviate waste of labour and time will not injure the totality of the effect produced. Good, nay indispensable, work may be done by translation at the proper time and place. But the proper time and place is not in the early days—perhaps not in the second stage of education at all. There is no virtue in a word for word translation of a statement so simple that every word is the exact counterpart of another in another language. So far as such translation leads to accuracy, that end can be secured by oral methods and free composition: flexibility, the other great end of education, so far from being fostered by literal translation of simple and often dullest matter, is on the contrary distinctly impaired. We still keep the mind in the same fetters, only we call them by a different name. The only educational value of translation lies in the work which the mind has to do in recasting the thought altogether—in the search for the root-idea—the thinking out of the exact shade each word is meant to convey—the search, sometimes almost impossible, for a method, not literal, of putting the same idea from the point of view of a race which gazes upon the world from a different standpoint and with different eyes. For even when we have the idea plain before us, the mere effort to find proper and idiomatic expression, so that it shall not seem foreign at all, is often a work of immense difficulty: it is a training in expression of inestimable value for cultivating our own sense of style. Translation from and into another language is the final point of training in the way of flexibility: to hold before the mind the same idea in two distinct shapes at once and to give to both the proper expression is an achievement really of the highest powers of mind.

CHAPTER X.

THE CLASSICS.

A THOROUGHLY adequate literary training can be secured for any child from French and German alone: the classics are a luxury—one by no means indispensable. The great advantage —or one of the two great advantages—of Latin, its extreme logicality, is shared to a large extent by the rigid German: while the understanding of the French subjunctive is a valuable training in classification and inference. Moreover the deep nature of German thought and its richness in expression for many ideas for which we lack in English a proper equivalent, are advantages which we may well set against the gain said to be derived from the compression of Latin thought and the composition of Latin prose—the point on which the out-and-out upholders of Latin usually base themselves in the last resort. In both cases we need serious effort and thought—readiness and flexibility, and of course exactness: the material may be different, but the processes are the same, and to those who know, there is no difference worth consideration between translation into Latin and translation into a modern tongue. Hence we need feel no great alarm lest the nation should lose virility through the fact that a large number will never touch the classics. And certainly, despite the opposite tendency in America which seems to be showing itself at the present time, there is reason to expect, and expect without fear, that

our Latin students will decline in number as the years go on. Mere grammatical drill, whatever that may be worth, can certainly be got from proper training in English and the other modern languages:—the reason probably why we hear so much of the inestimable value of a knowledge of Latin grammar is simply that most of those who use the argument have never worked out the possibility of deriving a thorough knowledge of grammar from other sources and quite as easily:—and we have already seen that the good of translation is not a speciality attached to the classics. Hence we may say with perfect confidence that for those who leave school at the end of the second stage, fifteen perhaps or sixteen years old, Latin or Greek is a superfluity—nay worse, a waste of time. They will never advance far enough to gain anything which they cannot gain as well from French and German, and with less prospect of its being afterwards lost.

The classics then fall properly in the third stage of education. Latin we should not begin as a rule before the age of about fourteen. If it is then taught by the intensive method, it is certain that a boy of normal powers will in two years be quite the equal of his comrades who started earlier in this particular line. The time that is lost and the weariness produced by our present habit of opening Latin at ten or even earlier is a drawback beyond all calculation. The only serious argument that can be adduced against postponing Latin to the later date, is that based upon the unconscious working of the mind—living in the atmosphere, steeping oneself in the spirit of the language. But two counter-arguments may be set against this. One is that of course for a boy studying Latin, the modern languages and his other studies, but particularly the languages, having to a large extent done their training work, and having been so thoroughly driven home that they will never hereafter be forgotten, will abandon a considerable portion of their time henceforth in favour of the classics: the other is involved in the answer to the question: What is the

aim of studying the classics at all? It has already been argued that linguistic method is one, and that the difference from the training point of view between a modern and an ancient language may be disregarded: what then remains? what is our real aim in trying to know the classics? Essentially it is a desire to extend our knowledge of the best that has been thought and said in the world: for the cultivation of pure style is a mere exotic of education, save in so far as it implies clearness of thought and accuracy. Now in order to extend our knowledge of that best, it is emphatically not necessary to master all those minutiae of grammatical analysis and critical study of texts which take up so large a portion of time—and take it up so very unprofitably—in the more advanced study of the classics, even at school. If we throw aside all this lumber and the waste of effort in writing verses, which, do what you will, remains always for the majority a mere mechanical exercise, then we save an immense amount of time which can be well devoted to "soaking in," to getting that real familiarity with ancient writers which is the proper aim of studying them at all. We need have no fear, if we renounce encumbrances and adopt the most expeditious and educational methods, that by the time a boy passes on to the University, he will not, though he has only begun classics at fifteen, be quite a match for any of his average contemporaries in the points that really matter, besides having a much wider knowledge of other subjects. At present a great portion of our classical training is sheer waste of time from the point of view of the best advantage to be drawn from a school course, and this for two main reasons —one that our education is largely a tradition springing from times when education in the classics was the only literary education to be had: the other that our older Universities give such large bribes in classical scholarships, and are themselves so permeated with the renaissance idea that the only education fit for a gentleman is an education in the classics, that it is in no way surprising if our schools cannot free themselves from

these strong bands, considering the close connection that the most famous, if not the wisest, of them have with the strongholds of classical tradition, Oxford and Cambridge. It is the undue early specialization created by these two causes which has led us so largely to overlook the real advantage to be gained from a study of the classics, which is a knowledge of their contents, not of their form. To argue, as is so often done, that the study of Latin prose is the best way to teach a good English style, is, first, to disregard facts, for it is emphatically not true that the finest scholars have the finest style or that one well trained in the classics does not require careful training in English writing as well—let the experience of Oxford tutors for the school of Literae Humaniores speak, —and secondly to show great ignorance of psychology: we might as well say that training the memory to remember words is training the memory to remember steps in a mathematical demonstration. Every separate subject requires its own special training: the only way training in one subject can help another is in the development of a certain attitude of mind—habits of attention, power of grasping detail, etc.,—an attitude which, being quite general, can be trained by many different subjects and then applied specially to a given subject later. This is the element of truth in the saying: "It does not matter what you learn, but how you learn it." And hence it is that, however good may be our own Latin prose style, however beautiful the outcome of our efforts in this direction, we cannot transfer our capabilities to our own tongue without the due modification of training. We may have acquired conciseness of expression and clearness of thought, though it has yet to be proved that even these qualities are the inevitable outcome of a training in Latin prose: but beauty of style depends largely, if not mainly, on a sense of rhythm and sound: one may keenly appreciate sound and rhythm in one language, and yet fail to attain the same standard in such totally diverse tongues as English and Latin. Indeed to be steeped in the rhythm of a

foreign tongue is probably *pro tanto* a disadvantage to one who wishes to write his own with beauty and effect. The stylist who desires to have his ear correct will not before composing read French, Latin or German, no, nor even Greek, beautiful as the Greek may be: he will read the great authors of his own language, in order as it were to tune the violin on which he is about to play. No, the real value of Latin prose lies in the training given to look below the surface, attending not to the expression but to the idea—so far, be it remarked, being the very antithesis of the attitude of mind of the stylist proper:—but this habit of looking below the surface, of attending to the matter and not the expression, is the habit which is fostered by any adequate training in any foreign tongue whatever it be. Style, if to be cultivated, must be cultivated *per se*, apart from any other aim: and it must be cultivated in the material in which it is to be shown. An artist does not try to improve his style by concentrating attention on the details of sculpture, nor an architect by constantly building fortifications, akin though may be the different pursuits, and valuable the lessons to be drawn from the contrasts: such lessons are but subsidiary: an artist must handle his proper materials, an architect work at churches and houses, if he would really attain perfection. So far as the student practises the other arts, so far is he breaking that continuity of idea, disturbing that steady attitude of mind which is one of the most indispensable qualities for any master of a subject to possess. Even Mr Swinburne and Miss Rossetti failed to attain a high standard when writing in French and Italian respectively. As students it may be well for us to have pushed our researches into as wide a sphere as possible: as practical writers, the more intensive we can make our studies of the material in which we are to work, the more perfect the ultimate result. We want a clear atmosphere, not one interspersed with clouds or shot over by cross lights.

It seems true then that our aim in studying the classics

will be not the cultivation of intellectual powers, which will already have received a good training in French and German, so much as the acquisition of new food-stuffs for the mind. We may grant at once that for this purpose the classics are in many ways unrivalled. For even if we allow that most of the valuable material has been already absorbed into our modern civilization, still the fact remains that we have in the classics the expression of these ideas in a simpler and more compressed form: we have the principles standing as principles before us, not mixed with a vast amount of later inferences which, owing to the possibility of constant error, only cross the dry light of the fundamental thought with perplexing shadows. But then comes the question: Where shall we find these simple principles best enunciated? Shall we go to Latin, or shall we go to Greek? Latin has the advantage of being in a direct sense the foundation of the modern world on the practical side, Greek of being its foundation on the artistic and thinking side. From Latin we derive our system of laws and government, our external surroundings: from Greek we draw our habits of thought, our inspiration. Which of these two is it more profitable to know? It is clear that as thought is bound up with expression, and the form of expression often gives to the thought its very vitality, whereas laws and systems of government may be adequately grasped without any direct connection with the form in which they were originally recorded, a knowledge of Greek is of more importance than of Latin, if we are not to live at second-hand all our days. Hence it would seem more desirable to learn the older language. A vast deal of Latin too is itself second-hand—a transcript of Greek without its vitality and charm. If we wish to go to the fountain heads of thought, we must know Greek: for though translations and adaptations may give us much, expression, as already said, is a vital part of thought, and in all translations we almost of necessity lose the advantage of the perfect expression. Where then a choice between the two languages is

inevitable, we should, if we could, choose Greek rather than Latin—the original rather than the copy. The profitable thoughts of Latin authors can be more adequately represented in translations than is the case with Greek.

Such considerations would lead us, if possible, to begin Greek before Latin. Are there any considerations derived from the nature of intellectual training in itself, apart from the considerations of a practical nature just described, which will either corroborate or upset this view?

Doubtless Latin holds the field, chiefly through tradition. There have however been protests. J. S. Mill began Greek before Latin, and Herbart was strongly in favour of this procedure. What can we hope to gain from the point of view of training by reversing the ordinary practice? It has to be remembered that we are supposed to be dealing with a boy at least in his teens who, already soundly trained in the use of his own tongue and other pursuits that have stirred his interest, has developed consistent habits of work and awakened his mind on all its many sides. Moreover he has a good grasp of German, so far as he has gone—sufficiently far, that is, to read a simple author with ease and profit and to understand the language fairly well when spoken. He has learnt in the process the meaning of language study and is in a position to derive full advantage from the pursuit of other tongues. He may have French as well: if so, he is faced by still less difficulty when he approaches the classics. From these two languages, or even from one alone, he will comprehend clearly what is meant by form in language: he will realize that henceforward it is not so important to pursue language form as an object in itself, but only as a means to some further end—the understanding and enjoyment of the thought conveyed in any new language he may have to learn. He will have learnt linguistic method and will not waste too much time over the dry bones of grammatical minutiae. But indeed from this wider point of view now gained the dry bones will be dry bones no more—they

will be living, clothed on with flesh and blood, breathed upon by the breath of life. For there will be a definite object before him, one fully realized in his consciousness—the attainment partly of emotional enjoyment, partly of new food for thought. Hence the mere dissection of grammatical forms will now retire finally into the background—its proper place after all in any language study, for in education it should be simply a help to other ends, not an end in itself,—and the question we have to weigh is this—What intellectual training may be gained from Latin and Greek apart from mere grammar?

Now either language properly pursued will increase both exactness and flexibility in the developing mind. Is there any marked difference from this point of view between the two? It is commonly urged that Latin is the very type of an exact language,—that the strongest argument in favour of the study is its extreme logicality. And this no doubt is true to a very large extent, only we may from considerations adduced above be permitted to doubt if its advantage in this respect, when we remember that a boy should approach it after training not merely in language but in other departments of knowledge as well, is so great as to counterbalance important arguments on the other side. Certainly one who understands, still more one who can write Latin well, must conform to strict rules and may, if not for himself, yet under guidance, derive some practical knowledge of logic from the steady consideration of those rules. Clearness of language and precision are indispensable in dealing with Latin: the thought must be grasped before the form can be found. Does the same hold true of Greek? We have there also a complicated language, one more complicated even than Latin: is it as exact and logical as Latin, and does its greater complexity stand in the way of a claim to be a better instrument of education?

Now the complexity of Greek is twofold, accidence and syntax. The accidence at first is formidable, but to one who

has been well trained in at least one foreign language and who knows the end at which he is aiming, it is not after all such an insurmountable obstacle as necessarily to lead us to think that Latin should be learnt first. It is a question of taking it in rational gradations and making use at once of whatever we learn—learning in fact for immediate use, not stocking a lumber room with accumulations of furniture never brought out and so of no value. German will have shown the use of different forms of words, and that is the real difficulty in any synthetic language. Hence whether we learn Latin or Greek first from this consideration does not seem to matter. About syntax however there is much more to be said. Greek has, like Latin, definite logical rules, the rationale of which we must know and understand: but there is this important difference—that in Greek there is more flexibility and variety, owing to the fact that for many Greek constructions there is almost always an alternative available. Is this an advantage from our present point of view, or the reverse? It may seem at first that to have but one path to tread, as with Latin is usually the case, will ensure a clearness and exactness of thought which nothing else can outweigh. And this would no doubt be true, if the alternative were an unlimited choice of paths, so that any route we happened to follow would lead us equally to our end. But this is not true with Greek. The choice is there mostly between two courses only, so that, while the path is not so narrow as in Latin, it is still so narrow that to walk in it safely requires great circumspection. "There is one way of going right, a thousand ways of going wrong" is a statement which may be made with wellnigh equal truth of Greek and Latin alike. In either case we have to be exceedingly careful in choosing any construction—to show that exactness which is one of our chief aims. The disadvantage of Greek under this head is that in many of the options it is so like our own language that we do not get the desired training in thought. But this by no means holds

always, and some might even maintain that the similarity to our own language might be regarded as an advantage, as it breaks the difficulty of passing from English to a tongue so exceedingly complicated as Greek. But if exactness is required in the treatment of either language, and if greater exactness is required in Latin owing to its greater rigidity, still from the other side again—its greater variety of construction—we may say that more accuracy is required in Greek, inasmuch as we have to know all before we choose. And this reflection leads to the decisive point—the question of training to flexibility. Greek in itself is wonderfully flexible, and the mere fact that at so many turns we are given in Greek composition a choice between two or more alternatives, is itself a most valuable practice in the art of attaining that flexibility of mind which at first we laid down as one of the main aims of all our intellectual education. And Greek possesses this flexibility not merely in its syntax but in its very thought. Its subtlety is without limit. It is impossible to read many of the great Greek writers without being stirred to thought as Latin rarely stirs us. The meaning of a Latin author is seldom difficult to divine, however difficult it may be to represent in modern English: in Greek on the other hand the thought is often difficult, because it deals with those subtleties which require reflection even when expressed in our own language, much more when expressed in another. And at the age when we shall naturally take up classical study, if we take it up at all, the food for development and the opportunities for gymnastic opened to us by Greek are unequalled: no other language can adequately take its place. The difficulties of German are more due perhaps to want of clearness of thought, or at all events of expression, than to subtlety alone: but in Greek, however difficult the thought may be, it is seldom due to obscurity properly so called: it is almost always the result of subtlety, and as soon as we are able to follow the subtlety, the difficulty vanishes.

It would seem then on almost all grounds of pure theory that we should begin the study of Greek before that of Latin. If neither language is touched till about fourteen at earliest, it may perhaps not be vital which we actually do start first: but if there is a probability that the boy will be able to learn only one of the two classical languages, by all means let it be Greek. For apart altogether from purely intellectual considerations, we have to remember that other points are raised in a complete scheme of education—considerations of the training of the emotions and the will, of delight in life, of opening to the young mind the finest avenues of thought and artistic enjoyment which the world has hitherto been able to afford. And when such aesthetic and moral considerations are taken into account as well as the intellectual, no one can hesitate. Greek possesses the finest literature that exists except our own, and in mere form is the most perfect of all: Latin is but a pale shadow by comparison, and far more monotonous. And it is no small advantage on the side of Greek that it has authors whose works are interesting even to the young: it is notoriously one of the drawbacks to Latin, at least as usually taught now, that its writers are arid in the early stages. Greek is instinct with early life: it has the glow and freshness of the child's world. And further, speaking broadly, for the modern world the most important part of Latin literature is the historical and antiquarian side: other authors, with but few exceptions, are of a lower quality than Greek, and not much will be lost by not reading them in the original. Now nothing is lost in the way of thought-food by reading historians and antiquarian writers in another form than the original: it is the authors who appeal to our emotional susceptibilities that lose by translation, or those whose subject matter is so abstruse, and often so bound up with the capacities of the vocabulary in which the thought is expressed, that much must inevitably be lost in a translation, even apart from the mere delight of style. Such a writer for instance is Plato. Hence it is undoubtedly

far more important for those who wish really to plant in their minds productive seed-thoughts for the rest of their lives, to know Greek rather than Latin: the thoughts of the latter language they can gain without much loss at second-hand: the thoughts of the former they cannot.

CHAPTER XI.

LOGIC AND SUMMARY OF GENERAL CONSIDERATIONS.

THERE remains one subject it is desirable to touch at school, because it sums up, as it were, the processes of mind which we have been teaching the young to use practically—Logic. The analysis of argument is fascinating in itself and will go far towards clenching the instruction we have given. It contributes to clearness and accuracy of thought, enabling us to test by formal rule any statement involving an element of inference. Great detail is not now needed, but the form of the syllogism, its legitimate moods, the theory of definition, true and false conversion, and the chief methods of inductive argument—all these can be taught with profit. We shall of course postpone to University days the subtle questions of theory to which Logic leads, nor shall we overburden our pupils' minds with quantitative propositions and similar minutiae: but the general principles, with examples of fallacies, will be of the greatest service, not merely as conducing to correct argument, but what is of even more importance perhaps, as enabling us readily to detect a fallacy, even when it is so subtle or complicated as to defy a plain classification. For it is not true to say that logic is unpractical—that it never yet made a correct reasoner. It makes a correct reasoner in just the same way as the study of mistakes in Latin Prose or of false argument in a mathematical problem helps to make a good Latin writer or a sound mathematician. The statement

referred to involves a fallacy. The study of logic will give us no material, nor teach us to bring two premisses together which seem at first to have no connection: but it will enable us, when we have material and the mental agility and quickness of insight to couple two seemingly disparate facts, to check our procedure and see that the combination is effected in a really legitimate way. The argument that logic never makes a correct reasoner holds only if the major premiss implied is something to the effect that all sound reasoning lies solely in the acquisition of materials for argument: we can then fit on the minor premiss that logic does not give us such materials: whence follows the conclusion that therefore logic does not help us to correct reasoning. But the implication when thus set forth explicitly, is obviously not sound: the detection of the fallacy is itself a good instance of the value to be gained from a study of formal logic, which is all that is here required. It is precisely because the steps in the argument are not usually thus set out at length that the argument passes muster at all. The true major premiss is something of this sort: Formal correctness of deductive argument lies in a legitimate combination of major and minor premiss in a syllogism: to which major premiss we add the minor: Logic shows us how to effect the combination in a legitimate way: hence the conclusion that logic will be of use in aiding towards correctness of argument. And *mutatis mutandis* a similar argument applies to the inductive branch of logic also. Even the statement that logic will not give us the material, is perhaps an overstatement: for logic will at all events enable us to check the inductive processes that lead to the major premiss. Logic is quite as valuable for induction as for deduction. In both cases it contributes to clearness and accuracy, and therefore is better fitted than any other subject to be the coping-stone of our system of intellectual education, so far as that is completed at school. Deductive reasoning is furnished chiefly by mathematics, partly too by the natural

sciences: inductive reasoning, chiefly by the sciences, partly by the critical study of language: for probable reasoning the best exercise is history, which also gives most valuable practice in disentangling causes and considering their combination. Illustrations and examples from the daily work of the school will give a sense of reality to the study of logic which cannot fail to create so strong an interest as to make it an addition of the utmost value to the ordinary curriculum of a secondary school.

We have now in the light of certain broad principles reviewed in outline the subjects of ordinary education, and tried to arrive at a clear answer to the question whether it is desirable to continue these subjects, or whether existing practice requires modification: and in the latter case whether sound principles require us to abandon some subjects altogether, or to change their position relatively to others, or to introduce some that are entirely new. We have tried to see how far flexibility and exactness as guiding principles are within our reach, and where they will lead us if consistently pursued. Flexibility we have attained by the variety of subjects taught and the width of interest opened up: properly handled the subjects named must give insight and quickness, and that broad-mindedness which prevents the specialist being nothing but a specialist, as a cobbler will think there is nothing like leather, and which is so far lacking as the outcome of the specialistic training given by our ordinary education of to-day, that we are overwhelmed with long discussions on the value of different subjects and bitter arguments between their rival supporters—scientific men inveighing against classics, the upholders of the classics against modern languages, and both the latter combined against science—arguments in which the most outstanding feature is the absolute ignorance so often displayed by the champions of one subject of the advantage of another—the inability to put themselves in a new attitude of mind at all—the strong and undying belief in short that to a

cobbler there is nothing like leather. Yet a good is necessarily an all-round education—a training first of all of hand, eye and ear, leading to development of the powers of observation: then the cultivation of the abstract powers of the mind and an appreciation of the value of emotional effects, terminating in such a knowledge of the past and the agencies which control both man and nature as will enable us thoroughly to understand the complex world in which we live. Multiplicity alone gives us the right attitude: we may not be able to pursue each subject to its depths, but if we have done thoroughly what we have done at all, we are in a position to develop later the seeds sown. The variety of subjects studied gives us the means of exercising the most important of all faculties—comparison and differentiation, synthesis and analysis,—the basis of all inference: and inference we shall have learnt alike in exact science and in those branches of knowledge where the results are probabilities, as well as in those other branches of study—languages—where inference is exact, but exact in a different sense from that which holds in natural science. We know the external world and we know the world of man. We have fitted ourselves not merely for theoretical study but for the practical ends of life. We have in fact shaped an instrument which may be applied to countless uses. Exactness too has been trained throughout, partly by the methods adopted in teaching, partly by the diversity of the subjects taught. For it is possible to be trained to exactness in one subject and yet not be able to show the same exactness in another without a special training, for the very reason that in many cases we do not realize that we are inexact, we do not know in what point exactness is required. This is another argument for a broad education, including as many subjects as possible: our education should cover at least a sample of all the important branches of human knowledge.

CHAPTER XII.

SPECIAL SUBJECTS AND SPECIALIZATION.

The question now arises: How far are we justified in disturbing a scheme of education based upon consideration of the natural powers and their psychological order of development out of regard to external circumstances and the needs of actual life? The answer to this question involves the consideration of two different factors—one, the length of time during which studies can be pursued, the other the desirability of beginning at school some special preparation for what will perhaps be the main work of after life.

Now, as regards the time that can be given to school life, there are three divisions that may be made in the rough—the three stages we may call them of education—first, the elementary, when children leave school at the latest at fourteen, usually much earlier: next, the intermediate, up to fifteen or sixteen: lastly, the secondary stage proper, carried to the age of eighteen or nineteen. Beyond these, again, there is the after school stage, met by the training of the University. The division by years can only be regarded as at best a rough approximation, owing to the great diversity between different minds and their comparative speed of development: but it is difficult to define, save in terms of age, even approximately what is meant, so that if it be remembered that the mention of a year is not meant to indicate a hard and fast line, but only to serve as a sign-post of direction, no confusion need arise.

Most writers and thinkers seem to agree that it is impossible to give the same education, if we would gain the best results, to children who leave school at the end of the first stage and to those who remain for the second or third, even up to the point where the first stage ends. And yet in theory such an argument seems a mistake. If our education is really based, as it should be, on the needs and powers of the mind itself, and not on external considerations, does it make any difference that a child is to proceed later to other subjects, for which in the first stage he is not yet fitted, or to subjects meant still further to develop the powers whose training was begun from the first? Are not the training of hand, eye and ear, the instruction given in the three R's, elementary conceptions of algebra and geometry, the teaching of English composition and literature, the logical training afforded by grammar, the elements of German, conversational and written—is not all this of value in itself, even if it be not pursued to its depths? It is a mistake to argue, as so commonly is done—implicitly at least, if not explicitly—that no subject is of value unless it be taken fully. At this rate we need learn nothing beyond the beggarly elements—the three R's and there an end. A perfectly sound education can be constructed on the foundation indicated above, even though not one of the subjects is exhausted. None can ever be completely rounded off: the value of the training lies not in amount, but in carefulness and accuracy so far as the work goes. And the more subjects that can be opened with a reasonable hope of advancing far enough to make the training of some value, even if the subject be entirely forgotten after the children have left school, the better for the future life: the mind has seen more of the complexity of the world, it is more awake than if the subject had never been touched. The whole question turns upon the method of teaching. If the subject is taught in a dry, formal way, so that in a language, say, the child has only mastered the formalities of grammar and has no idea of their practical use, then the time is waste: but if the

language be taught so as to be used from the first, we are not making a lay figure without any life, but quickening a soul in such a way that the advantage will never be entirely lost. As a matter of fact, the argument for the differentiation of elementary education from the more advanced stage, rests upon two considerations—the desirability of specialization, even thus early, and the question whether, owing to the influences of environment, it may not be better to give the elementary child a deeper grounding in certain subjects than is found necessary for his secondary brother.

Let us take the second point first. It is argued that the child at an elementary school has a home so far inferior in intellectual calibre that it will be impossible for him to keep pace with the child from a better home, where so much is done to train the intellect unconsciously, and that hence, with the former, elementary subjects will require to be treated more deeply and at greater length, thus making it undesirable and, indeed, impossible for the two children to undergo the same training up to the time when the one leaves school. Certainly we may grant that, speaking broadly, the child who attends a secondary school, even if he leaves it at fourteen, does come from a better environment than the child who attends an elementary school, and that his mind will be kept more alive at home, so that everything will not need to be done at school, as is the case so often with poorer children. And yet even this argument may be pressed too far. Those who have knowledge of the poorer class of secondary schools in our big towns are well aware that to talk of intellectual training in many of the homes from which the children come, is to shut one's eyes to obvious facts: the intellectual environment in many cases is no whit better, if it is so good, as in many of the homes in which elementary children live. But, even granting the truth of the contention in the main, it may be met by saying that the difficulty is self-corrective. If a child has his brain effectively roused at home, he will prove superior to a child who has not

this advantage: he will rise more rapidly—the children will sort themselves. Where the more fortunate child will take one year, the less fortunate may take two. The latter will never reach the more advanced stages, but this is not an argument for saying that education ought to be differently schemed for the two types. As the development of mental faculties appears to be the same in all ordinary children, following, that is, the same order, though not necessarily at the same pace, a sound education for one must be a sound education for all, so far as it goes. Nor is it of use to urge that if a child is going on to a more advanced education, his elementary education requires to be different, to enable him to prepare adequately for the further stages. This argument is really based upon the desire to push the claims of Latin to an early place in the curriculum. But if the considerations adduced above hold good, and if it is true that the mind is fitted to receive instruction in a given subject at a given time, and that energy devoted to that subject before the mind is developed to receive it, is largely, if not completely, wasted, then the argument falls to the ground. By training the mind after nature's guidance, we are preparing for more advanced subjects in the most effectual way possible, even though the subjects first taught—training of hand, ear and eye, for instance—seem to have no direct bearing on the subjects taken in the later stages, the learning, say, of Latin. We are stimulating the mind and giving it food—food suited to its digestive capacity at the time. A wise loss of time is untold gain. It may indeed be desirable, if the child who is destined to leave school at thirteen at latest reaches only in his last year a class in which an entirely new subject is to be broached, to admit of a bifurcation, and instead of letting him begin a subject where a year might be too little to give him such a grip, even so far as he goes, as would remain with him always, to deepen some of the work already done: but even here we should proceed with caution. Inasmuch as at any time when a new subject is started, we shall give to it for the first year what may seem an unduly large

share of time, it grows doubtful whether even a new subject may not do good: in any case it opens a new avenue of thought—a matter of even greater importance with the classes which feed our elementary schools than with the class above them. For above all things we have to widen the horizon of our children; it is on this that progress depends. But even if we grant that a bifurcation is desirable, and that in special conditions we may devote the remaining year rather to a development of what is already learnt than to the broaching of something fresh, it still remains of the utmost importance to see that we aim now, not at the formal side of mental training, but at the giving of nutritive fare—not realistic studies, which lead little further if at all, but the humanistic, above all English, so rich in stores of mind-forming material. German, if already begun, may well claim to be carried further, and such a study as history—not merely the history of our own country, but of Europe, or indeed of the world at large. Let the last year be devoted to broadening the outlook of the children in order to give them an interest in life and not merely in the external world.

The consideration of the second point, the influence of environment and the need, if any, for modifying our curriculum at all, has led us to discuss insensibly the first point also—the question of specialization. In the early stages, at all events, specialization is clearly a mistake: it is an attempt to force, by hothouse processes, what should be left to natural growth. Nor, beyond the period mentioned above, the last year under certain conditions, does there seem the least need on either theoretical or practical grounds for differentiating between the children at all. The mind grows in obedience to its own laws, and an attempt to specialize or force on it subjects for which it is unsuited at a given stage, or beyond the limit which is then suitable, results in giving death instead of life, and is largely responsible for so much of our inefficiency in elementary and in secondary schools alike. We are not here directly concerned with children who show marked ability in one direction: we are

weighing the mass. Yet even for those of such marked ability provision may be made by a due gradation of classes, and we must remember that it is such children above all who are in danger of falling into the noxious groove of the specialist—a narrow limitation of outlook. Even more than the child of average power, the comparatively rare child of marked ability in one direction requires a broad and not a specialist education: he is in danger of being so much absorbed by the subject to which he shows a marked leaning, that he will, if not guarded, unduly neglect others. Hence it is that specialists have often a narrow range, and that great scholars and experts are so prejudiced in favour of their own pursuits as to be unable to take a dispassionate view of the claims of other subjects. In particular is this the case with the non-humanistic studies—mathematics and natural science. Such studies are more circumscribed in their horizon: they do not require, as the humanistic studies do, that we should be masters of many branches of knowledge in order to be a specialist in one. Literature, for instance, can scarcely be confined to the literature of a single country, nor be properly pursued without history and geography: history again necessitates the knowledge of languages, if carried to the degree of specialization. This is not the case with any of the sciences. It is true that one science may require for proper treatment the knowledge to some extent of the root-principles of another: but in no case does science lead us to those multitudinous avenues which the study of history or literature or philosophy, being the reflex, as are those studies, of the complexity of human life, of necessity opens up. Hence the desirability of a broad education in all cases, but chiefly for those who are likely hereafter to specialize deeply in one branch. We all become specialists, more perfect or less, at last: but the most broad-minded, the most widely cultured, is likely to prove the most efficient, even in the narrow sphere in which his interest in the end may be chiefly locked.

Broad-mindedness, which is really one aspect of flexibility, must, if we look at life as a whole, be one of our main aims. On it depends the progress of the world. It is broad-mindedness which gives to a great thinker that new vision of the relations between well-worn subjects which leads to increase in the knowledge of truth and of the various aspects of life. Hence it is clear that if we are to specialize, we must be very careful in fixing the stage when that specialization is to begin. The arguments used above against specialist education in the primary school, apply in their measure to later stages as well. As long as new powers are budding, and the whole mind has not reached the adequate unfolding of every faculty, so long is specialism a grave mistake. Now that adequate unfolding is scarcely reached during school days at all: the grasp of abstract reasoning in what may be called the logical sciences—moral philosophy, metaphysics, higher logic—is not usually attained in any calculable extent before eighteen, if indeed then. Hence for those, at all events, within whose reach such branches of knowledge eventually come, it seems undesirable to specialize at school. And if we had a properly balanced curriculum, consistently and concurrently carrying out the development of every side of the mind—that of strict reasoning, as in science and mathematics, and that of probability and the cultivation of the feelings, as in the humanistic studies—then we could safely leave specialization till the mind had tasted of all the delights of knowledge and was able to judge if it really were attracted so intensely in one direction as to give hope of eminence by concentration. It is only those for whom eminence is possible for whom specialization is truly desirable. How much wider an outlook, how much richer a life, would not many of our second or third class men have, if only at school they had not been early narrowed to a curriculum almost entirely one-sided, whether classical, or mathematical, it may be, or scientific, and so had not been cut off many vistas of thought which would certainly have given them a broader

horizon, and might have given them a greater stimulus, whereas now they are often

> "for the book of knowledge fair
> Presented with a universal blank
> Of nature's works to" them "expunged and rased,
> And wisdom at one entrance quite shut out."

For specialization at sixteen or less may well have begun so early as to have failed to see what will be the greatest power in the fully developed man. No intensive study of one subject can atone for the loss of extensive study of several. The reason why the Germans appear to observers a specially well educated nation is precisely because they open up all avenues of thought, and open them up thoroughly, being content to leave specialization to the University stage. Are their scholars or students of science inferior to our own? Let those reply who know in their own sphere. Width of study does not mean that effective work, effective in mental training, effective, too, in attainment, is not done; it only means that at a time when his education is still unfinished, the pupil has reached a lower standard than the specialist, but is sound so far as he goes, and has had such a training that if he go further, he will know how to proceed on safe lines, besides having that wider outlook which will enable him to take an intelligent interest in all that concerns man and possibly suggest to him new lines of development in his own more limited particular pursuit.

There is no fear that by the continuance of a broad education throughout the length of school days we shall not be able to specialize effectively when the proper time comes. For this broad education itself implies that the mind is being trained in every direction, that all its powers are shielded from rust. No man can be expected to keep pace with knowledge as it makes progress in every subject, but every man who lays claim to being truly educated ought to understand enough of each ordinary subject of culture to be able to follow its main lines of development. And by the due co-ordination of all

instruction at school such a result can be attained. We shall give an approximately equal number of hours to each subject in the time-table, but when a new one is started some additional time at first in order to enable a good grasp to be won before the opening drudgery has killed interest. And as new subjects come in, we shall take time mainly from those other subjects which are most akin to them, which appeal to nearly the same powers. When, for instance, we start the classics, we shall draw the time required chiefly from modern languages, which by this time will be laid on a firm foundation, and not from science or mathematics. And we shall never, if we are wise, give up more than half our time to a single branch of knowledge, still less concentrate entirely upon it. It may, indeed, at the end of the second stage of education—that which closes about sixteen—not be considered worth while to begin a new subject like Greek or Latin for one year: then, just as was urged in the case of primary children who will not be able adequately to grasp a new subject in so short a time, we shall give the spare hours to developing the most fruitful subjects, either those which are most productive generally, such as the humanities, and, above all, literature, especially English, or those for which a child may have shown exceptional ability. But we shall not do this at the cost of the subjects already being learnt: we shall continue them up to the last. It is a great mistake to drop anything entirely, save only what may be regarded as the mere tools of education—writing, for instance, and in some cases drawing—or those which give their training in a short time, and which the boy may be trusted, if sufficiently interested, to follow out for himself—such subjects as drawing from another point of view, and the various branches of natural history. We shall rather concentrate our energies, if we have time to spare, on the most formative subjects—above all language. Language is, and must remain, the most formative, because it is the key to all knowledge: we may not be developing any fresh capacity, but to our knowledge we are always adding: we

are always becoming more thoroughly skilled in the various uses of the master key. Other subjects have limited aims: the knowledge of languages is unlimited in the power it gives: it fosters and supports every other attainment in the purely intellectual sphere.

Our guiding consideration then should be this: By continuing the equal study of many subjects, or by starting a new one, can we open up the mind more effectively than by deepening the knowledge of one already started at the expense of all the rest? Is breadth or depth the more essential for the average man? Inasmuch as breadth does not mean loss of depth as far as it goes, whereas depth in one or two subjects does mean loss of breadth, there can be little doubt what answer we shall give. The more tentacles with which the mind can grasp the surrounding world, the better for the man. Interest concentrated on one subject fosters no new tentacles: broad interest in many subjects constantly breeds new ones, which not merely seize on separate pieces of knowledge, but which strengthen and help each of the others. Were it not for our scholarship system, especially at the Universities, and for our most detrimental examinations, it is doubtful if the system of specialization would ever have attained its present hold. It is better to know something well learnt—and this is by no means a hopeless task—of all the leading branches of knowledge, than a great deal of one thing and nothing of others: *non multum, sed multa.* Else the soul is locked in but half-illumined darkness—"Wisdom at one entrance quite shut out"—nay, not at one only, but alas! at many. The great need of the world now is not for specialists—of them we have enough, yes, and to spare—but for men of wide outlook, of encyclopaedic knowledge, who shall take the dry bones that have been gathered by the efforts of many hard workers of purblind vision, and, breathing upon them a vital breath, build them into forms of living beauty—an undying addition to the glories of the human race. Such men our

specializing system of education, with its deliberate lopping of many of the fair shoots which the young soul thrusts forth in the direction of knowledge, lest forsooth the tree should never have one trunk of disproportionate strength (a lopping which may leave us a central stem, strong indeed and healthy, but useful only if cut down, and beautiful not at all, for the beauty lies in those fair shoots which a healthy tree, naturally grown, is for ever throwing out towards the wide air and spacious circum-ambience of heaven,—sensitive by their delicacy to all that moves around them, and brought into union with the countless light breezes which touch their every leaf; whereas the stalwart bole, stripped of its fringing glory, will stand unmoved and irresponsive to every influence save a storm, the end of which may well be destruction)—such men our specializing system of education does less than nothing to foster, nay, does it not do everything to kill? And for what? A more secure livelihood, in certain cases, or fame as a great storehouse of learning—learning of no use to any beyond a few, most of which, indeed, will for ever lie buried in the ponderous tomb of a scientific society's reports—in truth a living death!—when there lay open before the growing soul the full expanse of the realms of knowledge, and the power of influencing all men's lives for ever by bringing into their predestined unity thoughts drawn from remotest spheres, by placing in contact separate elements of knowledge, so that their affinity expresses itself by a flash, and with the glow and glory of mutually attracted souls which at length have found their long-sought mates, they rush for ever into one, giving birth to a new thought, a thought predestined to immortal life. But in a narrow patch no new thought can spring to life: the seed must travel far ere it attains the proper soil. It is the creative soul we want to foster, and creation is impossible without material. At present our aim is to turn our minds into vast warehouses of dry goods, stored in piles which none can handle: much that is rare and curious is lost in the heaps: but let them be spread abroad so that every one who

passes can see all the riches, and one man will choose this and another will choose that, and all our material will in time be used, and being worked into beautiful shapes of new truths will be—not heaped in dead piles and buried in a mass, but hung out in display on the walls of time for every generation to gaze and admire. Our minds should be art galleries, not museums of stuffed specimens, still less lumber rooms in fine confusion locked: the moth destroys the one or rust corrupts it: the other stands for all time a living home of truth and beauty. Half our efforts are lost because we exclude the fresh air of life from the knowledge we give: is it any wonder that consumption developes, and all the knowledge so laboriously gained passes unheeded to the grave? Facts in isolation are of no value, they are not even true: the truth of living things is relative to their surroundings: our aim must be, not facts, their mere accumulation, but the method of handling them—the wedding of them to other facts, so that no point is left frozen in isolation, but grows into part of one organic whole—the complex, interlacing, picturesque world.

Is it not appalling the apparently small impression which all our education makes upon thought? Are men who are called educated any broader in their outlook than an equal number of those who have had to educate themselves? Are they more dispassionate in judging a new point? Do they see further into the bearings of a new fact? Are they more devoted servants of the truth, setting it in dry light apart from old prejudice, whether innate from birth or ingrained by the superstitions of so-called education? Is the deep specialist for all his specialism one whit more free than the average man from all the idola which obscure the bright heavens in whose light alone truth and knowledge are revealed? We do not endeavour to free the mind from prejudice, enabling it to handle a new idea dispassionately, no matter how painful may be the process to our stiffening joints and old habituations: our sole aim seems to be, after stocking the mind with barren facts,

very circumscribed in their reach or extent, to hope—hope how vainly!—that by some magic process it will know how to handle them to its own salvation, and indeed to the gain of the whole world. As well might we teach a man the properties and names of all the raw products and the various machines that he will meet in a large cotton mill, and then, shutting him in a room where all was to be found, but piled in hopeless confusion, expect him at once to turn us out a finished fabric of the choicest kind. The combination is what we have to teach, the use of the materials, not their nature in themselves. And the use may be infinite, according as we have infinite ideas to apply to one apparently isolated fact. Such infinite ideas can only be gained by the broadest of all education, that which discloses countless avenues of thought, and teaches us at the same time, throwing aside prejudice, to regard things as they are, in the pure light of heaven, not through the fatally distorting medium of our own unsifted thought.

There is another and more difficult question connected with this of specialization: Should the education of boys and girls, so far as their intellect is concerned, be the same or not? Does sex make a vital difference in their powers? To give a definite answer to this question seems as yet impossible. In many regions, at different times, women have shown themselves the compeers of men in intellectual power: but such women may be exceptional, and from exceptions we cannot argue. At present the education of boys and girls is similar, if not identical, nor is it certain that the power of the brothers of necessity exceeds that of their sisters. The chief difference has been in the realm of the classics, girls as a rule starting later and not giving this subject so much attention as boys. Can it be said that in consequence they have suffered? As yet that hardly seems to be the case, while in other matters they seem to hold their own. But more evidence is required to settle the question on true scientific grounds—evidence not merely of mental capacity and tendencies, but of a physical nature as well.

It may be true that general tendencies differ—that girls are quicker and more conscientious and imaginative, while boys, if they are slower, reach a greater depth and are less likely to be led away by their imaginations and emotions: but the question is far from being settled as yet, if, indeed, it can ever be settled in the abstract. In any case it would not be unnatural to assume that the common foundation would be far larger than any difference arising from mere difference of sex: divergencies in detail might arise, scarcely difference in essentials. Yet to dogmatise is impossible: we must leave the question with the one remark that the solution of the problem is perhaps the most important of all which at present await scientific investigators into the methods and effects of education. Statistics are required—statistics of a kind most difficult to amass, most difficult to read properly: but till such statistics are forthcoming in large abundance and have been subjected to criticism for many years, we can only experiment, and, continuing with variation our present training, see what the outcome eventually may be.

CHAPTER XIII.

CONCLUSION.

THE great need of the world in every sphere, the intellectual perhaps even more than the practical, is originality. No amount of gold will compensate for the destruction of the possibilities of advance which lie hidden in the proper cultivation of originality—the development, that is, of those special gifts which mark off individuality as the one point which it is impossible for education to produce of itself. Such individuality is of inestimable value, and everything which tends to destroy or to hamper it is, if not for the individual—though in many cases for him too—at all events for the world, loss irreparable. By the cultivation of flexibility we tend to preserve that individuality—to give whatever of original power may exist the best chance of growth. For not merely does training to such flexibility keep the mind ever alert and active, not merely does it enable us to turn our thoughts in numberless unexpected directions, so as to bring to bear upon one problem considerations derived from many an apparently unconnected source, but it gives us the chance of waiting, before fixing the mind in one set groove, to see what its original powers may be, of waiting till the strength of the grown man is appearing, and hence of avoiding the risk of mistake when we decide to turn in one definite direction. This point is of the first importance. At present we limit the

outlook of our children in very early years, and scarcely give them a real opportunity of showing where their best powers lie. The changes of the mind in the course of development from childhood to youth, and from youth to manhood, are so great and often so unexpected that it is frequently impossible to say beforehand in what direction the man is most likely to win distinction. Hence we should cultivate every power to the utmost, at least till such time as the mind is really settling. This will certainly not be the case at the age when we usually begin to specialize—fourteen or fifteen years: if a marked bent declares itself even at eighteen or nineteen, we may consider ourselves unusually fortunate. Breadth then of training and avoidance of early specialization becomes important from this point of view, which should indeed be dominant: for individuality and original power are, as the Proverbs say, better than rubies, their price is beyond that of pearls. When such originality has begun to show itself, then we may specialize perhaps with effect: but at all times it is true that even the specialist benefits, often in unknown ways, often even in his special work, by the breadth of outlook which now we make it our aim to kill. American experience is teaching us the value of the broadest and most prolonged education even for business purposes: how much more valuable must it be, when we remember we are training not for one career, but for the fullest life a man can lead!

All education has a tendency, if not carefully checked, to kill that spontaneity of outlook and judgment which makes the original minds of the world. This is because it is so largely and unduly absorbed in teaching us the thoughts of others, rather than in letting us develop our own thoughts according to the native powers of our minds. That training is needful to fit us to our surroundings and enable us to profit by the gathered wisdom of the past, who would deny? but that our training should be of such a kind that we should simply take over the riches of the past without the power of using

them for our own advantage and in such a way as to add to them something from our own efforts, that is a fatal error, of which we already feel some of the consequences, and are likely to feel them growing perpetually in regular progression as the years advance. One ounce of originality, of fresh contribution to the thought of the world, is worth tons of knowledge gathered by others and simply stored away in the lumber rooms of our minds, like treasures in a chest which no one ever sees. Our ordinary training is a training in knowledge: what the world needs is a training in power. Knowledge by itself is of no more value than a corn-seed left to dry or rot till all its fructifying force is gone: the pursuit of knowledge for its own sake is selfishness—the most dangerous form of it because the most subtle. Facts in isolation are of no value—they are not even true. Just as food swallowed and left undigested is so far from giving nutriment that it is positively dangerous, so is it with knowledge which we take into the mind and have never learnt to manipulate and apply. The aim of education is not knowledge but power—the use of our own original powers in our own original way. We must train faculty, not memory: the latter is the servant, gathering material for his master, but the master must take the material and use it, if the labour of gathering is not to be waste. Hence we want more freedom in dealing with the growing mind: we must attach weight, not to the mass of knowledge collected, but to the use made of the facts we have, even though they be but few. To spend our time in cultivating thought and not in cultivating the acquisitive power manifested chiefly in memory, would be to gain an infinite gain at the cost of apparent immediate loss. We should turn out our children knowing less, but using well the less which they did know, so that it would be a vital whole with vital power of growth, not that agglomeration of dead knowledge of the past which is too often now regarded as the real aim of education. Better than a dead lion is a living dog: better a scantily

furnished mind which can use what it has acquired than a fully stocked mind which has no power of use. It is because we have so long made this fatal mistake that we so often find that those who at school have distinguished themselves by their power of acquisition fall behind in the race afterwards, lose their position and sink into nothingness. On the other hand many a boy who at school has been reckoned of no account or incapable, has in after life shown that he was wrongly handled by developing that original power, in the world of pure thought or in practical life, which at school was buried beneath overwhelming mountains of dead material. This principle has been recognised, but only in part, in the doctrine of interest and apperception, which has of late played so large a rôle in the theory of the principles underlying education. Only in part, because these doctrines can be applied, and interpreted as applying, to the acquisition of facts only—memory work, in short—and not to the handling of them in such a way as to generate new ideas or new principles. One fact may by interest lead to the acquisition of another fact and the two may be bound in indissoluble union: yet the union may remain barren—no new life may spring from it. The true test of all education is the power which the union of facts shows of giving birth to new ideas: a barren marriage is profitless, yet is the common result of thinking of facts in preference to their use.

This noxious habit of undue attention to the acquisition of all the knowledge which the past has transmitted, has been fostered till it has grown into a veritable upas-tree by the pestilent system of external examinations which we English have been brought to our sorrow and shame to believe the real end of an efficient education. Inasmuch as it is comparatively easy to ascertain the amount of knowledge which an individual possesses, but very difficult similarly to gauge on paper the amount of his power of original thought, and inasmuch as the average man, having no conception of what is meant by or

what is the value of a really efficient education, has to trust to declarations made by others, and, money being involved, thinks that those who have the training of his children in hand will be sure to represent, if left to themselves, things in the most favourable light and to do as little of their duty as is compatible with their living, and will be sure to show bias, it has been thought necessary to give full play to the inborn suspiciousness which every Englishman develops where money is concerned, and to appoint a set of spies to secure that the schoolmaster is doing a work which will produce at least some show, even though he neglect the weightier matters of the law —the development of character and genuine power, which there are no such ready tests to gauge. Blind leaders of the blind, examiners fall into the ditch and carry with them their unsuspecting followers, the gullible English public. The graver matters of education outside examiners cannot test. The inspector of foods may check adulteration: but if the wrong food be given to the wrong person, one whose digestion is incapable of assimilating it, where is the gain? Had not the inspector better resign his office? The real physician to prescribe is the man who has studied education and studied the children to whom he orders the doses: can one who has never seen the children and knows nothing of education save as a collection of facts—about as valuable as a collection of postage stamps or old nails,—can such a man gauge the proper work done? Is his judgment of any substantial value at all? Our whole system of examination and scholarships is a fraud—an appeal to the lowest motive in work, a disregard of those aims of education which alone differentiate it from ordinary business, alone raise it to the level of the ideal.

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